EDUCATION, OCCUPATION AND ASSOCIATED DEMOGRAPHIC CHARACTER AND SOCIO-ECONOMIC WELL-BEING IN BODOLAND TERRITORIAL AREAS DISTRICT (BTAD), ASSAM

Final Report of Major Research Project Funded by University Grants Commission (UGC), New Delhi and Conducted During 2013-2017

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CHAPTER 1

INTRODUCTION

1.1 Statement of the Problem

Human population plays a vital role towards the socio-economic progress of a nation. The quality of human population reflects the level of socio-economic development of a country. It also constitutes one of the most important determinants for socio-economic well-being of any area. The quality of human population develops with educational progress and it is largely governed by occupational character and associated economic condition. Hence, the prevailing educational attainment and occupation of the people in an area largely determines its demographic character and socio-economic well-being of the area.

India, which records a population of 1,210 million (as per 2011 Census), has still been witnessing a somewhat discouraging demographic character as reflected in its high birth rate, high infant mortality rate, low life expectancy, high child dependency, early female age at marriage and so on. In the case of educational attainment and economic condition also, the picture is far from satisfactory in most of the rural areas of the country with dominant agro-based economy. The situation in this respect is more so in the case of Assam, where as high as 86 per cent of 31.2 million population still lives in the rural areas with a variety of demographic and socio-economic problems. The picture is even more discouraging in most parts of BTAD, which occupy a marginal position in locational and many other fronts. This part of the state of Assam which shares borders with Bhutan and Indian states of West Bengal and Arunachal Pradesh and largely inhabited by the Bodos along with many other tribal and non-tribal groups having diverse ethno-religious and linguistic composition has still been socio-economically far behind many other parts of the state. This is reflected in the prevalence of low literacy rate (67.53 per cent as against state's average literacy rate of 73.18 per cent as per 2011 Census) and lack of adequate awareness towards better health and living condition. It is in view of the feeling of long continued deprivation compelled the majority tribal group

Bodo to launch a very forceful agitation programme for their all-round development including protection of territories, self-identity and age-old socio-cultural practices. As a consequence, the govt. of India constituted Bodoland Territorial Council (BTC) within the state of Assam in 2003 comprising four Bodo dominated areas, later declared as BTAD. It is with the above background the present research work entitled "Education, Occupation and Associated Demographic Character and Socio-Economic Well-being in Bodoland Territorial Areas District (BTAD), Assam" is taken up to empirically understand the whole issue of demographic character and socio-economic well-being and its relation with prevailing educational attainment and occupation in the Bodo people dominated BTAD in both spatial and social contexts.

1.2 Review of Research and Development in the Subject

Population and Social Geography as branches of Human Geography have been making significant strides not only in understanding various demographic and social issues in proper perspective but also towards development of the subject. Many such studies have been conducted globally and nationally at different scales - macro, meso, micro and local on a wide variety of themes.

International Context

The studies relating to various population and social aspects constitute an important part of human geography for the last several decades. In this context the contributions like '*A Geography of Population*' by Clarke (1965); '*A Prologue to Population Geography*' by Zelinsky (1966); '*An Introduction to Social Geography*' by Jones and Eyles (1977); '*The Geography of Social Well-being in the United States*' by Smith (1973); '*Patterns in Human Geography*' by Smith (1975); '*An Exploration of India: Geographical Perspectives on Society and Culture*' (ed.) by Sopher (1980); and so on may be considered very significant towards setting a trend in the initial stage for further research in the field of population and social geography. In recent time the contribution of UNDP in bringing out Human Development Report every year since 1990 including the technique evolved for determination of human development index at country level has been highly significant. In this way there have been continuous efforts by the geographers working on diverse population and social issues in different parts of the world including ageing, demographic transition, socio-economic well-being, quality of life, gender discrimination, population pressure, environment and development

interfaces, education and employment, migration and associated issues, population growth and sustainability, etc.

Kluczynski and Gmytrasiewicz (1972) studied the socio-economic effectiveness of education and found out the relations between the national economy and culture and the educational system, economic aspects of the functioning of education, and cost-effectiveness in individual terms. The effects of education can be seen in two ways, viz. direct and indirect, and have an importance for planning.

Osborn (1987) in his study attempted to assess the socio-economic status of families by means of a composite Social Index comprising seven social indicators like occupation and education of the heads of household, housing tenure, type of accommodation, persons per room, car and telephone ownership etc.

Jackson (2009) in his research stated that demographic researchers recognize the potentially significant contribution of health early in the life course to broader population welfare, both within and across generations. A considerable relationship between adolescent health and educational attainment within the generation observed here raises the potential for health to contribute in a non-trivial way to intergenerational inequality. Health's relationship to educational attainment in particular is suggestive of a large indirect role of health in the stratification process through education, a known contributor to social mobility and reproduction.

Samuel *et al.* (2013) in their study of interplay between educational achievement, occupational success and well-being suggested that the social comparison between adolescents and their parents to be the mechanism explaining the effects of successful and unsuccessful intergenerational transmission of educational achievement and occupational success on well-being. It is further argued that well-being may serve as an individual resource by fostering education and occupation.

Noor *et al.* (2014) carried out a study to develop a set of indicators for measuring the state of family well-being in Malaysia, and subsequently, to produce an Index of Family Weil-Being. The findings suggest that family well-being is multifaceted, made up of not only the immediate family relationships and health and safety of its members, but also include adequacy of income to meet the demands of a minimum standard of living.

Lam and Liu (2014) in their study of socio-economic inequalities in happiness in China and U.S. revealed that socio-economic inequalities increase inequalities in happiness in China as poor are the least happy even though the income effect flats out at the high end. Apart from it, individuals with below high school education are less happy

than those with more education and in terms of occupation agricultural workers are the most unhappy and are becoming even more so over time. However, in U.S. there is no systematic difference in happiness across income and education groups and between agricultural and non-agricultural workers. In both countries health is a major factor contributing to happiness. The study implies that adequate provision of national health care services should be an effective way to improve social welfare.

Heady *et al.* (2018) studied the value of the distinction as underlined by findings indicating that well-being and ill-being have different correlates and causes. Well being depends more than ill-being on the personality traits of extraversion and optimism, and also on the existence of supportive social networks. Ill-being is more strongly related to socio-economic status, poor health and low scoring on the trait 'personal competence'. However, it was found that more variance can be accounted for in the balance of well-being and ill-being index than in the separate indices of well-being and ill-being.

Huppert *et al.* (2009) in their study of measuring well-being across Europe analysed the economic, social and environmental influences on well-being which can be derived from other items within the European Social Survey and from other data sources with the belief that well-being module will provide invaluable information for behavioural and social scientists and contribute to the development of policies and practices for enhancing well-being across Europe.

Siddiqi *et al.* (2012) in their study of education determines nation's health, but what determines educational outcomes suggests that income inequality is inversely related to social cohesion like mortality, verbal ability and behavioural difficulties in pre-school children and anti social behaviour in preteens, etc. It also leads to the psychological impact of societal inequality.

National Context

The study of various population and social issues by the Indian geographers has not been so recent. The Indian scholars who contributed to the development of this field of geography in the early period particularly since 1970s include G.S. Gosal, C.D. Despande, J.E. Schwartzberg, Moonis Raza, A.B. Mukerji, A. Ahmad, R.C. Chandna, K.N. Singh, M. Taher, Gopal Krishan, S. Mehta, S. Nangia, M.S. Gill, H.N. Sharma and many others. Among a number of important works in this field, '*India: Culture, Society and Economy*' (ed.) by Mukerji and Ahmad (1985); '*An Atlas of Tribal India*' (ed.) by

Raza and Ahmad (1990); '*Social Structure and Regional Development: A Social Geography Perspective*' (ed.) by Ahmad (1992); '*Demographic Transition: The Third World Scenario*' (ed.) by Ahmad, Noin and Sharma (1997); and '*Geography of Population*' by Chandna (2002) are worth mentioning. In North-East India also, a number of research works relating to various aspects of population in both spatial and socio-cultural contexts have been done at meso and micro levels in the forms of Ph.D./M.Phil. dissertations, research papers in journals and edited books on the issues of population growth, migration, population pressure, occupational mobility, socio-economic well-being, literacy and education, gender, sex ratio, etc. But the works relating to the study of underlying linkages between education, occupation and demographic character and socio-economic well-being have still been almost absent. It is more so in the case of newly constituted BTAD, Assam.

Kuppuswamy and Singh (1967) in their study of socio-economic status stratification in western Uttar Pradesh pointed out that illiteracy rules the occupation and income in both rural and urban areas of India and dictate the social stratification among them. Ohlan (2013) did another study to assess the pattern of disparities in socio-economic development at district level in India by applying composite index and disadvantaged districts have been identified and potential targets for various social amenities are estimated in India. The constructed socio-economic development index shows that India's southern region is far more symmetrically developed in comparison to central and northern regions. The results show that wide disparities in the level of socio-economic development exist among different districts within and between different regions of India. The level of development in infrastructural service sector is found to be positively and statistically significantly associated with the overall socio-economic development indicating that the growth and progress of the sectors have been going hand in hand in the country.

1.3 Significance of the Study

Human population, which acts both as producer and consumer of resources, is the prime attribute of any kind of development in a country. It is the basic ingredient considered for all the planning strategies and efforts. The present study would not only provide the contemporary scenario of the demographic character and socio-economic well-being of the study area, but also help in postulation of different planning strategies for future

development of the region. The study would also attempt to find out the prevailing socio-spatial disparities of different demographic attributes in relation to educational attainment and occupational structure among the different population groups of the BTAD largely inhabited by Bodo tribal people. Further, this study never attempted before, bears an immense academic and practical significance, because the findings of the study would provide inputs and useful directions for undertaking proper planning strategies for socio-economic development of the region.

1.4 Objectives of the Study

The main objectives behind the present study are

a) to analyse the pattern of educational attainment including the gender disparity in the study area (BTAD) in both spatial and social contexts;
b) to study the occupational pattern of the people in the study area to understand the prevailing economic condition;
c) to assess the spatio-temporal patterns of demographic character in the study area on the basis of fertility, mortality, sex ratio, age composition, life expectancy, age at female marriage, etc in both spatial and social contexts;
d) to assess the disparity in the levels of socio-economic well-being in both spatial and social terms;
e) to examine the impact of education and occupation on the demographic character and socio-economic well-being in the study area; and
f) to evolve possible measures for a balanced and sustainable socio-economic development in the study area both spatially and socially.

1.5 Research Questions

i) How do education and occupation influence the demographic character and socio-economic well-being in the study area?
ii) How do the various factors associated with demographic character control socio-economic well-being in the study area?

1.6 Database and Methodology

The data necessary to congregate the objectives of the study have been obtained from both primary and secondary sources. The basic framework of the study is derived by consulting relevant literature available in the form of published books, bulletins and journals, government reports, unpublished theses and articles available in the websites. The methods and techniques involved in the study have been developed through consultation of various theoretical and empirical issues concerning public health status

and development of healthy society from the disciplines of geography, anthropology, medical science, demography, sociology, cultural studies, etc.

Secondary data

The secondary data necessary for the study have been drawn from the following sources:

- Data relating to literacy rate, population composition, vital rates, occupational structure, economy, forest resources, etc. are obtained from various Census of India volumes for the period 1971-2011 and Directorate of Economics and Statistics, Government of Assam, National Information Centres of Kokrajhar, Udalguri, Chirang and Baksa; different volumes of Statistical Handbooks both published from BTC and Directorate of Economics and Statistics, Government of Assam.
- Data pertaining to health care institutions and resources, mortality, morbidity and various disease control awareness programs, management strategies, etc. have been collected from Directorate of Health Services, Government of Assam; Joint Directorate of Health Services, Government of Assam, Kokrajhar, Udalguri, Chirang and Baksa; Directorate of National Health Mission, Government of India, Assam; Block Primary Health Centres of Kokrajhar, Udalguri, Chirang and Baksa.
- Data relating to village level information regarding dominant population groups and available infrastructural facilities, village level maps, etc. are derived from the District Census Hand Books of respective districts and revenue circle offices of Kokrajhar, Udalguri, Chirang and Baksa;
- For preparation of location map, physiographic map various Survey of India Toposheet, Google Earth Maps, books, journals, etc. are consulted.

Primary data

The primary data for the study have been collected through well-designed household survey schedule-cum-questionnaire and village/town information schedule through appropriate sampling technique. To validate the relevance of the questions included in the household survey schedule-cum-questionnaire and check with the type of reaction from the respondents, a pilot survey has also been conducted in Kokrajhar with a very small sample size. On the basis of the response obtained and gaps/limitations observed, some alterations and modifications in the schedule-cum-questionnaire have been done so that relevant and useful information can be accumulated.

Sample Selection

In order to collect the household level data, sample villages have been selected through stratified random sampling technique in consideration of dominant population groups, and physical and locational aspects of the areas concerned. Accordingly 23 sample villages and 2 urban centers have been selected purposively to depict both rural and urban scenario of the educational attainment, occupational character and prevailing health status of different groups of people in the study area (Table 1.1).

Table 1.1: Sample Design (Socio-spatial distribution of sample villages and urban centres)

Community Villages/ Urban Centres	No. of Villages/Towns selected in each District				Total (Villages and Towns)
	Kokrajhar	Chirang	Baksa	Udalguri	
Bodo	2	2	2	2	8
Tea Tribes	1	-	-	1	2
Koch-Rajbongshi	2	2	-	-	4
Non-Tribal Assamese	-	-	1	1	2
Nepali	-	-	1	1	2
Bengali Hindu	1	-	-	1	2
Indigenous Muslims	-	-	1	-	1
Non-Indigenous Muslims	1	1	-	-	2
Towns (Mixed population)	1	-	-	1	2
Total	**8**	**5**	**5**	**7**	**25**

The care has also been taken while drawing the sample so that it is well representative of the area and population. Altogether both for rural and urban areas 1,411 households constitute the sample size. A minimum of 80 households and maximum of 120 households is considered in the selected urban centres (Udalguri T.C and Kokrajhar M.B.) and in the case of rural areas, from a minimum of 30 households to maximum of 66 households constituting a proportion of sample households ranging from 7 per cent to 62 per cent is considered from each sample village to understand the prevailing health condition in relation to socio-spatial variations in education and occupation (Table 2.2).

A total of 8 dominant population groups along with mixed community dwelling urban areas are considered to understand social variations in health status in the region. As the proportion of population belonging to Bodo community is the largest in the region, 2 Bodo-dominated sample villages are considered from every district of BTAD.

Table 1.2: Sample Size of Villages and Urban Centres Considered for Primary Survey

District	Population Groups	Urban Centre/ Village	Total Number of Households	Number of Sample Households	Sample Percentage
Kokrajhar	Mixed Community	Kokrajhar Town (MB)	7420	120	1.62
	Bodo	Rangalikhata II	100	30	30.00
		Dawaguri I	158	58	36.71
	Tea Tribes	Dolabari Bagicha	417	57	13.67
	Koch-Rajbongshi	Balagaon I	244	38	15.57
		Guwabari	642	52	8.10
	Bengali Hindu	Titaguri II	818	57	6.97
	Non Indigenous Muslims	Gokulkhata II	114	66	57.89
Chirang	Bodo	Bengtol II	568	54	9.51
		Tukrajhar II	110	53	48.18
	Koch-Rajbongshi	Durgapur	354	51	14.41
		Shupariguri No.1	253	38	15.02
	Non Indigenous Muslims	Serfunguri	154	52	33.77
Baksa	Bodo	Chouraguri	194	50	25.77
		Barangabari	279	50	17.92
	Non-Tribal Assamese	Reclamation Block A	359	55	15.32
	Nepali	Dhanshiripur	333	55	16.52
	Indigenous Muslims	Dighaldonga	147	50	34.01
Udalguri	Mixed Community	Udalguri Town (TC)	3354	80	2.38
	Bodo	Songlabari	97	60	61.85
		Mantikiri	311	60	19.29
	Tea Tribes	Khokhagaon	106	53	50.00
	Non-Tribal Assamese	Bar Jalah	530	58	10.94
	Nepali	Nepaligaon	155	56	36.13
	Bengali Hindu	Pachim Nalbari	236	58	24.58

The data so collected from both secondary and primary sources are processed and analysed by using simple but meaningful statistical techniques, ranging from ratios or percentages to correlation and regression analysis, standard deviations, coefficient of variations, composited z-score method and complex principal component analysis techniques for deriving meaningful conclusions.

To conceptualize the research problem in proper perspective and to understand the geographical background of the study area, various research journals, books, articles, bulletins, published and unpublished theses from the various fields of geography and other related disciplines have been consulted. The demarcation of boundary of study area (BTAD) including its districts has been based on the Census of India, 2011.

The study is largely based on objective analysis of all relevant data relating to the problem and associated patterns and processes. For analyzing the educational and occupational patterns, literacy rate, work participation rate, agricultural and non agricultural occupational composition have been found out for 1971-2011 (excluding

1981 and 1991) at revenue circle and district levels to depict spatio-temporal variations. The overall literacy rate, male-female literacy, work participation rate, male-female work participation and occupational composition for the Census year 1971 and 2001 have been found out through recasting of data on the basis of 2011 BTAD boundary demarcated by Census of India. For clear exposition of gender differential the differential index (DI) is applied in between male-female and work participation or occupational composition as applied by Krishan and Shayam (1978) to understand urban-rural differentials in literacy in India.

$$DI = \frac{M - F}{T},$$

Where; DI = Differential Index in Literacy;
M = Percentage of Male Literates;
F = Percentage of Female Literates; and
T = Percentage of Literates in Total Population.

To understand the educational progress through the ages, age-specific literacy rate and age-specific educational attainment levels are found out for analyzing changing trend of educational advancement at community and district levels. For this purpose the minimum age for attaining graduation level is considered as 22 year. The level or state of educational development is calculated through consideration of indicators like literacy rate, male-female differential in literacy, percentage of literates with HSLC/HS, percentage of literates with graduation and above, male-female differential in HSLC/HS, urban-rural differential in graduation and above, literacy rate below 20 year of age, male-female differential in literacy below 20 year of age, percentage of literates with HSLC and above in 22-35 age.

The locational and physiographic maps of the study area and map depicting health status level in BTAD are prepared in GIS environment. Besides, many other diagrams portraying various dimensions of education, occupation and health are prepared with the help of meaningful cartographic techniques for giving clear exposition of the problem. The conclusion of the study has been drawn on the basis of results derived from data analysis and personal experience gathered through the field observations and discussion with the local people.

CHAPTER 2

GEOGRAPHICAL BACKGROUND OF THE STUDY AREA

The living environment consisting of both physical and socio-cultural elements has a great influence on the demographic and socio-economic well-being. The physical environmental setting in which man lives has a wide connotation for human growth. It has both positive and negative impact on human health. The physical environment with clean air, clean drinking water and quality food and healthy work place determines the overall health of an individual. It acts as the source of nutrition provider and store house of natural amenities to support life form. On the other hand, human habitat or physical environment where man lives also acts as a medium of disease causation, transmission and influences the resistance capacity of human being by controlling their metabolic level. However, population characteristics and human activities like ethnicity, education, occupation, living condition, etc. forming the socio-cultural environment influences overall health status, disease perception and awareness towards different diseases among the population and also modifies the physical environment. Moreover, the intrinsic culture of human development throughout the ages is also the result of habited ecology, which largely determines the perception towards attaining a good health.

The various disabling diseases like malaria, dengue and other communicable diseases spread due to the surrounding living environmental condition. Similarly, typhoid, jaundice, respiratory diseases, etc. are caused due to the indoor environmental and outdoor pollution level of the surrounding environment. Hence, the study of human habitat, human characteristics, behaviour and their interrelationship is highly essential to understand the health status and its determinants in an area in proper perspective.

2.1 Location and Situation

The Bodoland Territorial Areas District (BTAD) of Assam is the gateway to the beautiful north-eastern region of India. It is located in the north bank part of the Brahmaputra valley, covering an area of 7905.38 km^2. Administratively it consists of four districts, viz. Kokrajhar, Chirang, Baksa and Udalguri (Fig. 2.1). It has been further subdivided into 10 civil sub-divisions and 37 revenue circles, some of which are partly in BTAD area and partly outside

(Fig. 2.2). Geographically it is located between 26°7′12″N to 26°47′50″N latitude and 89° 47°40″E to 92°18′ 30″E longitude. The BTAD region is curved out roughly in the rectangular shape with northern boundary of the region bounded by the foothills of Bhutan and Arunachal Himalayas, east by Sonitpur district, west by West Bengal and the south by Dhubri, Bongaigaon, Barpeta, Nalbari, Kamrup and Darrang districts. It has 3,066 villages covering an area of 7861.27 km^2 and 12 towns having an area of 44.11 km^2 (2011 Census). Out of 12 towns, only 1 is with Municipal Board (MB) and 5 with Town Committee (TC) and the remaining 6 are census towns (CT).

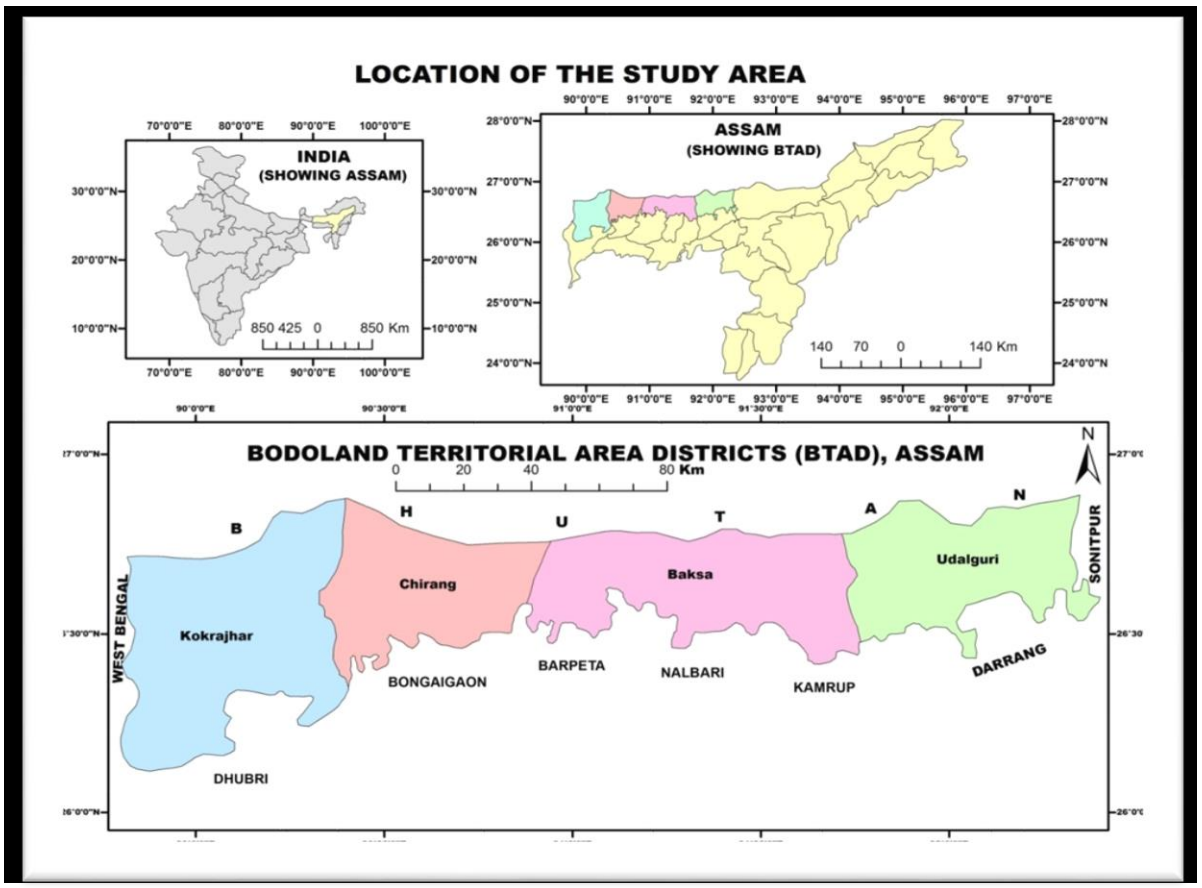


Fig. 2.1

The region is a part of greater Brahmaputra valley formed in the Tethys geosynclines. The Kokrajhar town located within the Kokrajhar (Part) circle of BTAD acts as headquarters of the region and government and semi-government establishments came into existence at Kokrajhar creating employment opportunities to a considerable extent and as a result people from outside started migrating to Kokrajhar in search of job and other economic opportunities.

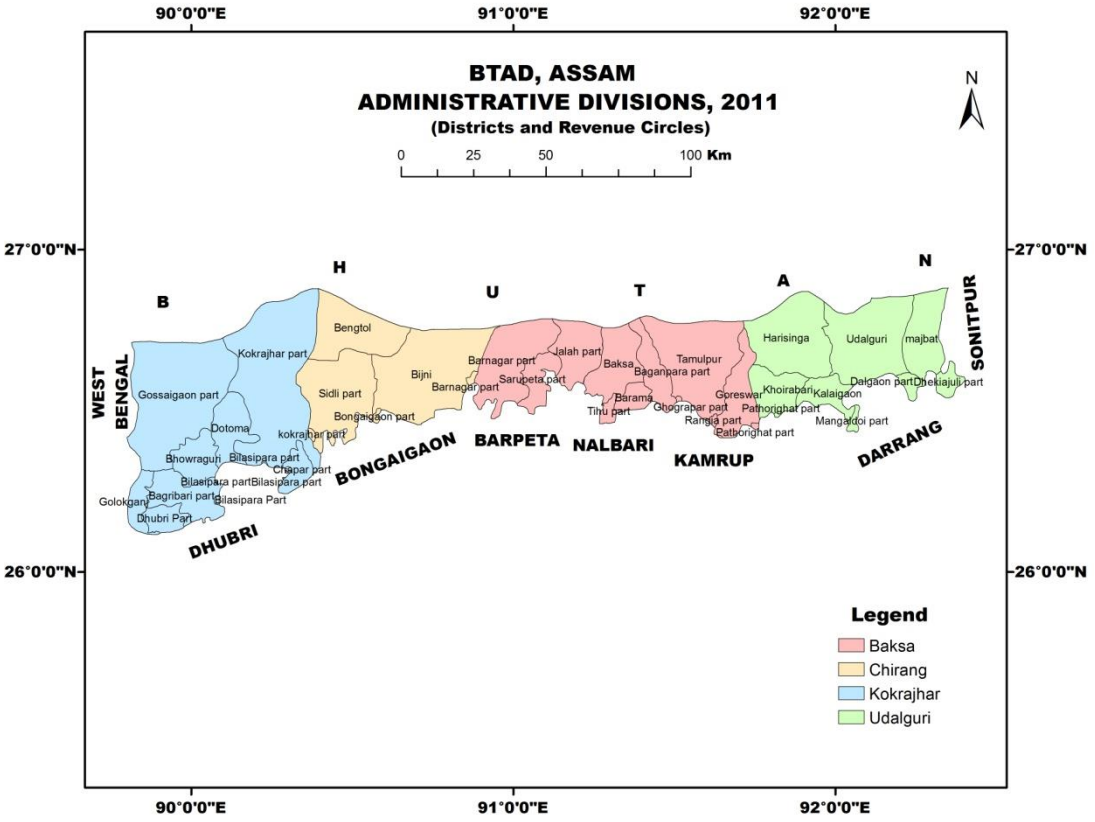


Fig. 2.2

2.2 Formation of BTAD

The burden of history is proving ever so heavy for the indigenous people of Assam. Since the 1930s the issues of land, immigration, demographic change and identity have been crucial in this region (Misra, 2012). The term Bodoland is derived from the Bodo indigenous tribal group belonging to the Indo-Mongoloid group falling within the Tibeto-Burmese linguistic section (George, 1994). The Bodos previously known as Kacharis in the pre-colonial period form the largest tribal group in entire North-East India. The Bodos had close affinity with the tribal communities like Dimasa, Rabha, Deori, Lalung, Tiwa, Madani, Mech, Saraniya, Hojai, Garo, Koch,Chutiya, Sonowal, Thengal Moran, Hajong, Tippera, Mahalia, Barman, etc. They are geographically concentrated in different locations, viz. Assam, Arunachal Pradesh, Nagaland, Tripura, Meghalaya, West Bengal, Nepal, Bhutan and Bangladesh. They have their own distinct language, culture and belief system. The formation of BTAD is the result of peaked Bodoland movement since long 55 years, starting from 1960s with the formation of Plains Tribals Council of Assam (PTCA), demanding a Union Territory called Udayachal to safeguard the tribal belts and blocks which were being encroached by rich landlords and new

immigrants through illegal means (Saikia, 2013). The core issues of instability and clashes in the BTAD region since long are about control over land. The tragic situation of 2012 Hindu-Muslim clash in the BTAD is the outcome of wrong policies which have been pursued since Independence, all resulting in the marginalisation of the plains tribal communities and the dispossession of their rights to land (Misra, 2012).

Another milestone in the evolution of the Bodoland movement came under the leadership of Upendranath Brahma, the then President of All Bodo Students Union (ABSU). Under his leadership movement for separate Bodoland was launched on 2nd March, 1987 (Battacharya and Deka, 2010). They created a political wing of ABSU named Bodo Peoples Action Committee (BPAC) which supported the separate Bodoland movement. After several years of movement an agreement was signed on 20th February, 1993 and Bodoland Autonomous Council (BAC) was created. But it failed to fulfill the aspirations of the Bodo people (Hazarika, 2011). BAC was created under the state Act and thus it existed at the mercy of state government. It was also mentioned in the agreement that the large forest areas of Indo-Bhutan International border on which the Bodo people are dependant for their daily livelihood would not be included within BAC. The revival of Bodoland movement by ABSU after the BAC fiasco coincided with the emergence of another militant group called the Bodo Liberation Tigers (BLT) in 1996 who bowed to continue armed struggle until a separate state is carved out of Assam. Following a series of negotiations, the BLT leadership gave up the demand for a Bodoland state in 2001, and reconciled itself for an administrative arrangement under the Sixth Schedule of the Indian Constitution, called "Bodoland Territorial Council (BTC). Thus, another phase of movement was launched in 1996 and another agreement was signed on10th February, 2003 and Bodoland Territorial Council (BTC) was formed under the Sixth Schedule of the Constitution of India by curving out some area of eight districts of Assam, viz. Kokrajhar, Dhubri, Bongaigaon, Barpeta, Nalbari, Kamrup, Darang and Sonitpur within the state of Assam, with a mission to accomplish development in the areas of economic, education, preservation of land right, linguistic aspiration, socio-culture and ethnic identity of Bodos and above all to speed up the infrastructure development among different communities in the BTC area.

2.3 Physical Background

The physical background which influences the infrastructure development and socio-economic functioning of an area can be understood through relief, drainage, climate, soil, vegetation, etc.

Relief

BTAD region is characterized by varied geomorphological features like foothills, highland plains, flood plains with abundance of wetlands or *beels*, etc. The elevation of the region ranges between 38 m and 180 m and physiographically the region is divided into Foothill region and Brahmaputra plain (Fig. 2.3). The entire northern part of the region falls under the foothills of the Bhutan Himalayan ranges. It is the zone where unassorted sediments like boulders, pebbles, etc. are deposited by the rivers descending from the Himalayas. The northernmost part of the foothill region is characterized by highly porous belt where streams flow underground, commonly known as Bhabar. The porosity of this zone is so high that most of the small streams disappear in their upper course and reappear downstream. This zone is dominated by large trees. To the south of the Bhabar zone lies the Terai belt with marshy soil and predominance of tall grasses, thick forest and rich wildlife. This zone is ideal for the concentration of the reserve forests and wildlife sanctuaries.

The larger part of the region is covered by the Brahmaputra plain formed by the Brahmaputra river and its numerous tributaries. This region may further be sub-divided into Highland plain and Flood plain. The highland plain is the outcome of the longer deposition of older Alluvium by the Brahmaputra and its tributaries. This zone of the region has enormous importance with high population concentration due to its fertile agricultural land and even topography for human settlement. Most of the man made activites are highly concentrated in this belt of the region due to its favourable topographic characteristics.

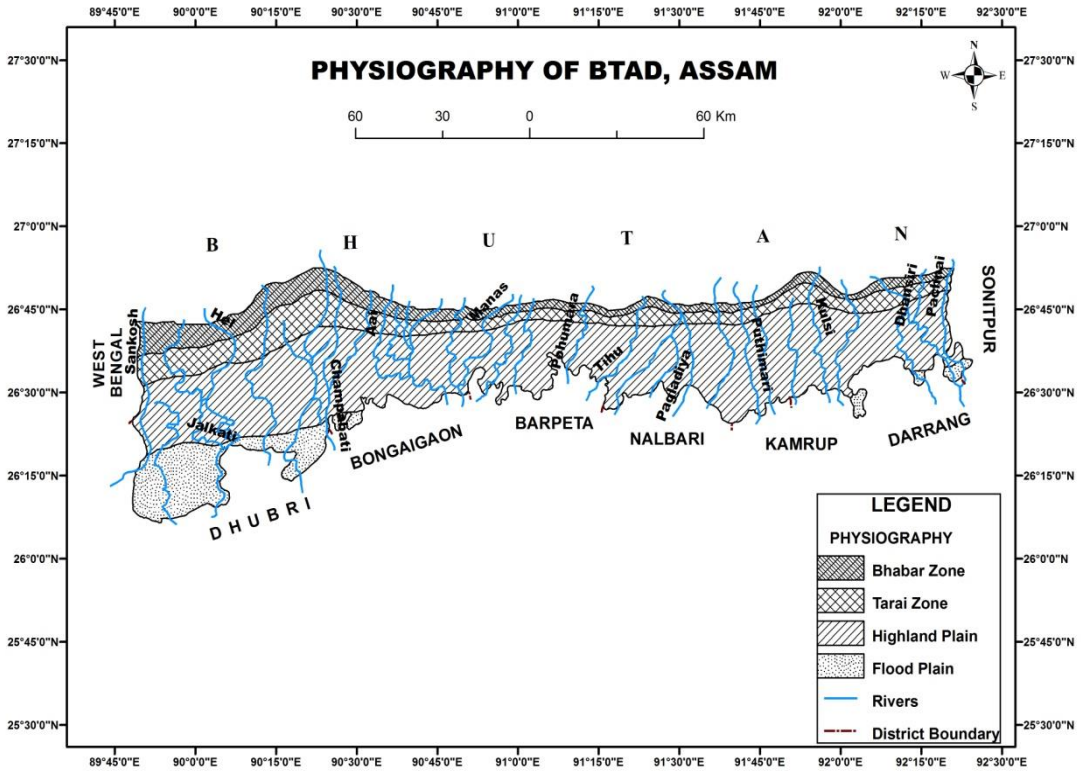


Fig. 2.3

The irregular floodplain of the Brahmaputra plain occupies the southermost part of the region. The continuty of the floodplain of the region is interrupted by the presence of isolated hillock Chakrasila, in the southern part of Kokrajahr district (Bora, 2001). This region is made up of the recent deposits of the alluviums carried by the braided Brahmaputra river and its tributaries. The formation of sand bars in this region results in the occurrence of *chars* or *chaparies*. The fertile alluvial top soil of the region supports immense agricultural activities, attracting human settlements despite high susceptibility to erosion and frequent innundation.

Drainage

The major portion of the BTAD region is characterized by a flat plain configured by Brahmaputra river and its tributaries. The region is mainly drained by Sankosh, Hel, Jolkati, Saralbhanga, Gourang, Dhelpani, Champabati, Manas, Angrong, Kanamakra, Sukan, Bhur, Aie, Mona, Mora Mona, Pagladiya, Puthimari, Bar, Kulsi, Chandana, Dhansiri and Pachnai. Most of the rivers originate in the Bhutan Himalayan region and join the Brahmaputra river system as its tributaries. The Sankosh river forms the western boundary of the region, while Pachnai river partly forms the eastern boundary of the region. Sankosh river flowing through Bhutan, India and Bangladesh originated at the glaciated Himalayan range of northern

Bhutan in the name of Puna Tsang Chhu with major tributaries as Mo Chu and Pho Chu and empties into the Brahmaputra river of Assam forming the western boundary of Kokrajhar district of BTAD. The rivers Madati and Gangai provide water to the Bhowraguri revenue circle villages. Another important river Hell, which is originated in the lower ridge of Bhutan in Kokrajhar and it passes through Ripu reserve forest, Ramfalbil, Serfanguri and Dotma. This river also provides water for irrigation purposes in most part of the eastern part of Gossaigaon part revenue circle and in the western part of Dotoma revenue circle. The river Gourang and its tributaries Saralbhanga and Delpani provide water to larger part of the Kokrajhar district. The Champabati and Bhur rivers flow in the north-western part of Chirang district and the Aie river, one of the important tributaries of Beki river, flows through the villages of Bengtol and Bijni revenue circles of Chirang district. The Nangalbhanga and Kanmakra flow into the Aie river as its tributaries and jointly falls in the Beki river. However, the Manas river, which forms the eastern boundary of the Chirang district, provides water for different uses in the region. The mora Manas, Pagladiya, Puthimari and Bar Nadi rivers flowing through the Baksa district act as the potential sources of water in the region. The Kulsi, Bharla, Dhansiri and Pachnoi are the important rivers flowing through Udalguri district of BTAD region.

Climate

The entire state of Assam is under the regime of monsoon climate. Likewise the districts of BTAD enjoy sub-tropical climate with hot and humid summer, followed by cold and dry winter. The average annual rainfall of the area is about 250cm. It receives maximum rainfall during the months of June to September (Fig. 2.4).

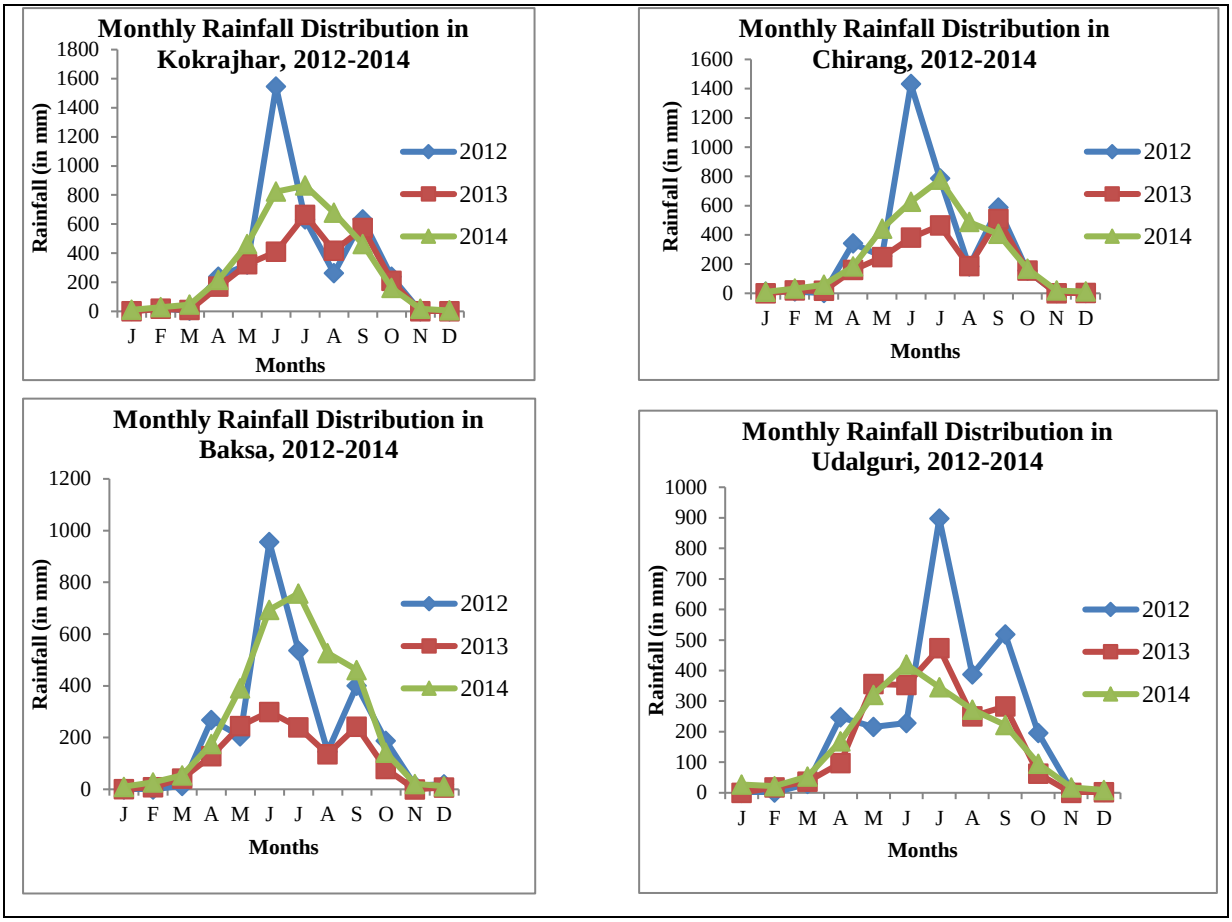


Fig. 2.4

The maximum temperature of the area varies from 33˚C to 38˚C and the minimum temperature varies from 9˚C to 10˚C. Like the other parts of the state, this part of the region also experiences four types of climatic seasons, viz. Pre-Monsoon from the month of mid February to May with occasional rainfall, Monsoon period starting from first week of June to September with heavy to moderate rainfall and hot and humid climatic condition, Post-Monsoon period starting from October to November with moderate temperature and light rainfall and dry winter from the month of December to early part of February with cold and dry weather condition. The month of July receives the highest amount of rainfall throughout the year and is also the hottest month. However, January is the coldest and lowest rainfall bearing month throughout the year. The region experiences heavy summer rainfall, winter drought, high humidity and relatively moderate temperature throughout the year supporting growth of diverse flora and fauna making the region as one of the biodiversity hotspots in the state of Assam (Barthakur, 1986).

Soil

The soils of BTAD can be broadly classified into two categories as alluvial soil and piedmont soil. The alluvial soil can again be segregated into two categories as older alluvium and younger alluvium. The older alluvium is found in the patches between the younger alluvium and piedmont soil. This soil is acidic, sandy and rich in potash and phosphorus. It has moderate amount of organic matter and nitrogen and supports autumn and winter variety of rice, mustard and wheat cultivation. However, the larger proportion of active Brahmaputra flood plains which is covered with younger alluvium with sandy to silty loam, slightly acidic nature and grey in texture also supports variety of crops. The piedmont soil is confined to the narrow zone along the foothills of Bhutan Himalaya. Depending on the nature, it is classified as Bhabar and Terai soil. Bhabar soil is found along the northern boundary of Himalayan foothills. The unassorted boulders, pebbles, cobbles sand and silts turn the streams disappear in this region due to its porous nature. In between the alluvium and bhabar soil lies the terai belt, where streams reappear and support tall grasses.

Forest Resources

The entire area of BTAD falling under the regime of monsoon climatic region is endowed with vast forest resources. The region has a total forest area of 3,45,934.865 hectare, of which 2,61,775.035 hectare is under reserve forest, 26,980.017 hectare under proposed reserved forest and 57,179.813 hectare under protected area (CHD, Forest, BTC, 2015). One of the world biodiversity hotspots, Manas National Park also falls within the boundary, covering an area of 500 sq. km in Chirang and Baksa districts of BTAD region. Similarly, Chakrashila Wildlife Sanctuary of Kokrajhar district covering an area of 45.58 sq. km and Barnadi Wildlife Sanctuary in Udalguri district having an area of 26.22 sq. km enhances the forest resources of the region. Apart from it, Ripu-Chirang Wildlife Sanctuary in Kokrajhar district (592.54 sq. km) is a proposed Wildlife Sanctuary. All these act as habitats for a wide variety of flora and fauna in the region.

The tropical semi-evergreen forest provides suitable habitat for a large number of flora and fauna in the region. The floodplain zones of Brahmaputra and terai belt support savannah grassland with tall elephant grass, reeds, different species of grass like Nal, Khagori, Ikora, Ulu Kher, Kohua, etc. A large number of animal species including one Horn Rhino, Elephant, Golden Languor, Tiger, Pygmy hog, Hispid hare, Assamese Macaque, Rhesus Macaque, Leopard, Golden Cat, Clouded leopard, Fishing cat, Leopard cat, Jungle

cat, Indian civet, Toddy cat, Himalayan palm civet, Binturong, Common mongoose, Small Indian Mongoose, Himalayan black bear, Sloth bear Gaur, Water buffalo, Sambar, Hog deer, Barking deer, Swamp deer, Wild pigs etc. are found in the region (Dept. of Environment and Forest, 2015).

2.4 Socio-Economic Background

The study of socio-economic background of a region is considered most important in the present study as it has significant bearing on the level of socio-economic well-being and status of health condition in the region. The social environment where a person lives shapes an individual's behaviour along with its growth and development. The adoption of different cultural traits, habits, customs and tradition is induced to an individual from the social environment. Similarly, the pattern of economic condition also greatly determines the prevailing differences in the status of health in a region as it acts as the main controlling factor for maintaining living standard and utilizing various health care services. Thus, the socio-economic structure reveals the prevailing socio-cultural environment of the region.

2.4.1 Population Growth

Human population is a core element of any health study as human-being is the mass of any ailment. It not only plays as a controlling factor of developmental activities related to health but also a host in the occurrence of diseases (Park, 2005). The pattern of population development with respect to growth, composition, density, etc. also acts as an interface of socio-economic development along with the associated health status of the region. Therefore, the consideration of population of BTAD region is of utmost importance in the present study. The Bodoland Territorial Area Districts (BTAD) of Assam, which constitutes state's 12.35 per cent area and 10.10 per cent population (2011 Census), has been witnessing an alarmingly high growth rate of population like many other districts of the state. It is striking enough to note that during the period 1971-2011 the region's population has increased from 14.99 lakh to 31.51 lakh (Table 2.1). The average annual growth rate of the region (1.87 per cent) is slightly lower than the state average growth rate (1.91 per cent) during the period 1971-2011. So far the district level growth rate is concerned, highest growth rate is found in the Kokrajhar district as it acts as centre of BTAD and its growing urbanization, while lowest growth is found in the Udalguri district. However, highest percentage share of population to the total population of the region is contributed by Baksa district (30.16 per cent), while lowest share is by Chirang district (15.30 per cent) throughout the entire period (1971-2011), but with respect to population concentration highest population density is found in Udalguri

district (413 persons per sq. km) throughout 1971-2011, with lowest density in Chirang district (251 persons per sq. km).

Table 2.1: Population Growth in BTAD during 1971-2011

DISTRICTS	ANNUAL GROWTH RATE DURING 1971-2011	PERCENTAGE SHARE OF THE STATE'S/ COUNTRY'S POPULATION	PERCENTAGE SHARE OF POPULATION TO THE REGION'S TOTAL	POPULATION DENSITY (PERSONS PER SQ. KM.)
1.KOKRAJHAR	2.10	2.84	28.15	269
2.CHIRANG	1.69	1.54	15.30	251
3.BAKSA	1.93	3.04	30.16	387
4.UDALGURI	1.67	2.66	26.39	413
BTAD	**1.87**	**10.10**	**100**	**325**
ASSAM	**1.91**	**2.58**	**-**	**398**

*BTAD's population is recasted from the District Census Handbooks, Series 3, Primary Census Abstract, Assam,1971 and 2001on the basis of 2011 Census Boundary.

Source: Census of India, Series 1, Primary Census Abstract, Assam, 1971-2011.

The population composition also varies spatio-temporally throughout the region. In terms of sex composition, the region records higher sex ratio (968) than the state average sex ratio (958). Among all the districts, Baksa has the highest sex ratio of 974 (2011 Census), while Kokrajhar has the lowest sex ratio (959). The districts of BTAD have marginal proportions of urban dwellers (4.44 per cent), which is significantly lower than the state average (14.09 per cent) and national average (31.15 per cent) percentage of urban population. However, the proportion of urban population has increased slowly from 2.31 per cent in 1971 to 4.44 per cent in 2011. In terms of regional variation within the districts of BTAD, Chirang (7.33 per cent) has the highest percentage of urban population, followed by Kokrajhar (6.19 per cent), while it is significantly low in Baksa (1.29 per cent) and Udalguri (4.52 per cent) district (Table 2.2).

Table 2.2: Percentage of Urban Population and sex ratio in Bodoland Territorial Areas Districts of Assam during 1971-2011

Districts	Percentage of Urban population			Sex Ratio		
	1971	2001	2011	1971	2001	2011
1.Kokrajhar	4.41	6.09	6.19	927	946	959
2.Chirang	3.25	6.72	7.33	923	948	969
3.Baksa	0.00	0.00	1.29	926	957	974
4.Udalguri	2.26	4.36	4.52	902	952	973
BTAD	2.31	3.87	4.44	919	951	968
ASSAM	8.81	12.90	14.09	896	935	958

Source: Calculated from Primary Census Abstract, Assam, 1971, 2001 and 2011, Census of India.

2.4.2 Population Composition

So far social composition of population is concerned, this part of Assam has higher concentration of scheduled tribes (ST) population (33.50 per cent) as compared to the other parts of the state. In comparison to this, about 5.57 per cent population of the region is scheduled castes (SC) population. In terms of spatial variation of SC and ST population composition, Baksa (7.69 per cent) district has the highest and Kokrajhar (3.33 per cent) has the lowest proportion of SC population in 2011. Similarly, in respect of ST population, the highest proportion is concentrated in Chirang (37.06 per cent), while Kokrajhar (31.41 per cent) records lowest proportion. It is observed that the proportion of SC population has increased in all the districts of BTAD. But the proportion of ST population has declined in Kokrajhar and Chirang districts during 1971-2011(Table 2.3).

The prevailing diversity in the population composition particularly in respect of ethnicity makes the growth pattern of population in BTAD quite varied and complex. In fact, depending on the ethnic background and associated socio-cultural practices and economic condition, the growth rate of population varies significantly from one community to another in the region. The contribution of varied and changing population growth rates among the SC and ST is clearly observed in the changing proportions of population among them in BTAD during 1971-2011. It is found that due to higher annual growth rate among SC during 1971-2011 (2.35 per cent) the proportion of SC people in BTAD has increased from 4.63 per cent in 1971 to 5.57 per cent in 2011. Subsequently, the ST people have witnessed a rise in the proportion from 32.26 per cent in 1971 to 33.50 per cent in 2011 with a considerably high annual growth rate of 1.97 per cent during 1971-2011 (Table 2.3). This phenomenon is largely due to considerable decline in the birth rate among the ST as compared to some non-tribal people including the Muslims.

Table 2.3: Growth Rates and proportions of Scheduled Castes and Scheduled Tribes Population in Bodoland Territorial Areas District (BTAD), Assam, 1971-2011

Districts	Scheduled Castes				Scheduled Tribes			
	Average Annual Growth Rate during 1971-2011 (In %)	Proportion of S.C. Population out of Total Population (in %)			Average Annual Growth Rate during 1971-2011 (In %)	Proportion of S.T. Population out of Total Population (in %)		
		1971	2001	2011		1971	2001	2011
1.Kokrajhar	2.48	2.87	2.99	3.33	1.99	32.65	31.40	31.41
2.Chirang	1.81	6.97	8.13	7.29	1.62	38.07	40.13	37.06
3.Baksa	3.05	4.96	6.96	7.69	2.14	32.05	38.48	34.84
4.Udalguri	1.71	4.53	4.29	4.55	1.98	28.75	32.60	32.15
BTAD	**2.35**	**4.63**	**5.20**	**5.57**	**1.97**	**32.26**	**34.99**	**33.50**
ASSAM	**2.26**	**6.24**	**6.85**	**7.15**	**2.23**	**10.98**	**12.41**	**12.45**

Source: Calculated from Primary Census Abstract, Assam, 1971, 2001 and 2011, Census of India.

So far the religious composition of population of the region is concerned, the majority proportion of the population follows Hindu religion (71.25 per cent) and it is comparatively higher than the state average figure (61.46 per cent). The Muslim religion (19.12 per cent) constitutes a relatively smaller proportion as compared to the state average (34.22 per cent). However, the followers of Christianity is significantly high in proportion in BTAD (9.14 per cent) than the state average (3.74 per cent), as a large segment of people belonging to Bodo, Tea Tribes and other tribal communities got converted into Christianity. So far district level variation in religious composition is concerned, higher proportion of Hindus is found in Baksa district (82.40 per cent), while lowest proportion is found in Kokrajhar district (59.64 per cent). However, notably higher proportion of Muslim religion is found in Kokrajhar district (28.44 per cent) (Table 2.4). The Christianity is found to be higher in Udalguri district (13.25 per cent) and lowest in Baksa (2.85 per cent).

Table 2.4: Religious Composition of Population in BTAD, 2011

AREAS	RELIGIOUS COMPOSITION (IN PER CENT)			
	HINDU	MUSLIM	CHRISTIAN	OTHERS
1.KOKRAJHAR	59.64	28.44	11.39	0.26
2.CHIRANG	66.50	22.66	10.32	0.23
3.BAKSA	82.40	14.29	2.85	0.20
4.UDALGURI	73.64	12.66	13.25	0.27
BTAD	**71.25**	**19.12**	**9.14**	**0.24**
ASSAM	**61.46**	**34.22**	**3.74**	**0.41**

Source: Census of India C-15 Series (Religious Community by Age-Group and Sex), 2011

2.4.3 Economy

Economy determines the human behaviour particularly towards the living condition, preference of disease treatment, nutritional level, etc. and overall health status of a region. Hence, proper understanding of economic status is very essential for meaningful analysis of the health status of a region. The economy of the BTAD region is largely dependent on agricultural and allied sector. The region produces about 25,49,876.51 metric tonnes of food grains like cereals, pulses, oil seeds, spices and vegetables, etc. in 5,19,211 hectare of land area and about 26,797.13 metric tonnes of non-food items like fibers, plantation crops, etc. in 13,052 hectare area during 2015-2016. Apart from it, the BTAD region produces 16,123.96 tonnes of fish during the same period. About 1,590 number of villages including 52,113 families in the region are associated with production of sericulture goods relating to eri, muga and mulberry during 2015-16 with 795 metric tonnes of silk yarn production. So far the industrial sector of the region is concerned, it has only a few industries and most of them are cottage and villages industries. About 59 units of cottage and village industries and 144 number of registered factories are found in the region supporting 174 employees in cottage

and village industries, and 6,301 workers in registered factories (Statistical Handbook of Bodoland Territorial Area Districts, 2015).

The occupational structure of the region is also diversified with respect to economic activities. The majority of the population continues to be predominantly agrarian in all the districts of BTAD. The region possesses comparatively very less proportion of non-agricultural workers (40.16 per cent) than the state average (50.65 per cent).This may be due to lack of industrialization and low level of literacy rate throughout the region. Larger proportion of the population is closely associated with the agricultural sector (59.84 per cent), while a less proportion of the population is engaged in household industry, trade and commerce and service sectors (Table 2.5). The subsistence type of agriculture is practiced throughout the region. Hence, it needs to import most of the food grains from outside.

Table 2.5: Occupational Structure of Workers in BTAD, 2011

OCCUPATIONAL CATEGORIES	PERCENTAGE OF WORKERS
CULTIVATOR	39.72
AGRICULTURAL LABOURERS	20.12
HOUSEHOLD INDUSTRIES	4.06
OTHERS	36.10
TOTAL	100

Source: Primary Census Abstract, Census of India, 2011, BTAD, Assam.

2.4.4 Transport and Communication

The level of infrastructural development in respect of transport and communication provides accessibility to health care facilities in a region. The roadways and railways are the only means of transport network system in entire BTAD region. The various parts of the region is connected with National Highway extending for a length of only 45 km, 214 km State Highway and 5,216 km other P.W.D. roads. It is not commendable to mention that only 39.32 per cent of the P.W.D. roads are surfaced. The district of BTAD is connected to the rest of the country by the broad gauge line of North-East Frontier Railways with Kokrajhar, Gossaigaon, Goreswar, and Udalguri as important stations. The entire region is served by the 388 sub-post offices of which 8 post offices are in urban areas and 380 sub-post offices serve the rural population.

2.5 Profile of the Sample Survey Areas

A brief account of sample survey areas is necessary to understand their geographical context along with landuse pattern, social structure and economic structure. The physical characteristics, landuse, social composition along with cultural practices and economic characteristics of a particular area have great bearing on health status. It also explains

availability and accessibility of various services both in the public and private sector and planning for enhancement of better services for the common masses. As stated in methodology presented in chapter 1, to understand the prevailing demographic and socio-economic characteristics and health condition and associated issues, altogether 25 sample areas have been selected (2 urban areas and 23 villages) (Fig. 2.5).

Urban Areas

1) Kokrajhar Town (MB)

Kokrajhar, one of the oldest towns of Assam, was declared as town committee in 1956 when it was a part of the then Goalpara District to look after various civic needs of the growing urban community and it got the status of Municipal Board in the year 1970. It is the only town in BTAD region as maintained by Municipal Board (MB). Geographically it is located at 26˚24′6.48″N latitude and 90˚15′37.02″E longitude with an elevation of 38m. Kokrajhar town covers an area of 8.24 sq km. The Gaurang river forms the western boundary of the town. There are 7,420 households in the town with a total population of 34,136 and sex ratio of 943 (2011 Census). The entire municipal area of Kokrajhar town is divided into 10 wards. It has a literacy rate of 89.95 per cent. About 39.17 per cent population in the town is engaged as workers.

2) Udalguri Town (TC)

Udalguri town, one of the important towns of BTAD, is district the headquarters of Udalguri district. Geographically it is located at 26˚44′45.66″ N latitude and 92˚ 05′45.39″ E longitude with an elevation of 115m. The town committee area covers an area of 4.69 sq. km. and is divided into 6 wards for administrative purpose. It has total number of 3,354 households with 15,279 population and sex ratio of 981 (2011 Census). Out of the total population, about 17.37 per cent belongs to scheduled tribes. The total literacy rate of the town is 88.32 per cent. It has 35.25 per cent working population. However, the figure is very less in respect of female work participation (13.98 per cent).

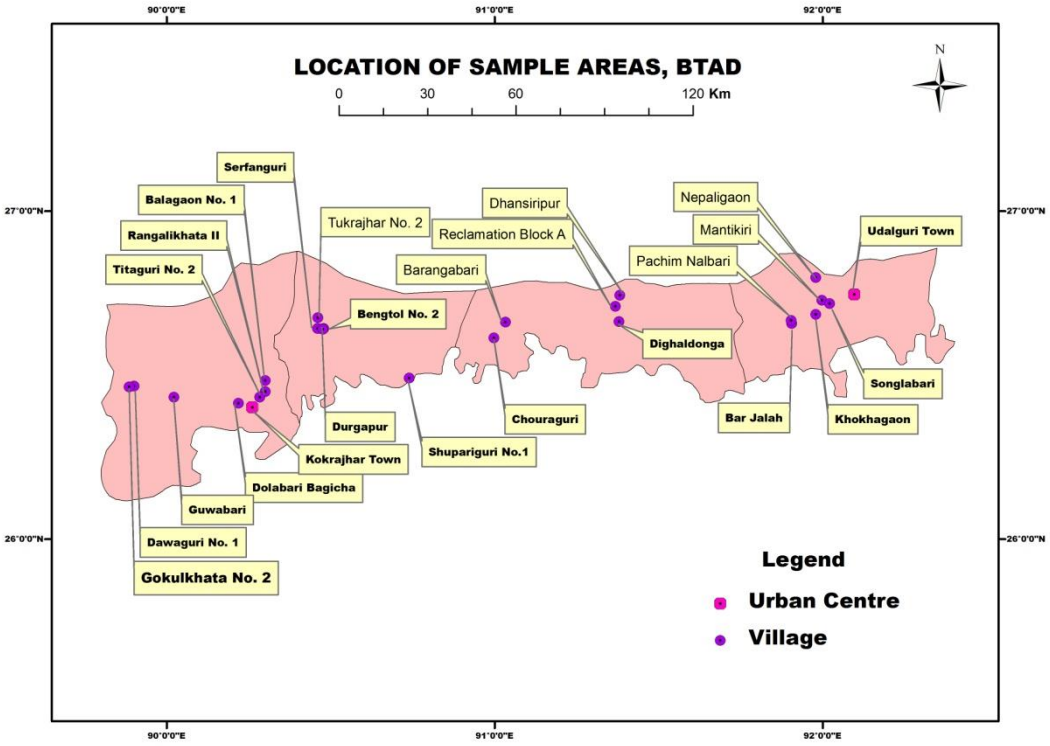


Fig. 2.5

Rural Areas

1) Rangalikhata II

This village is located at a distance of about 10 km on north-east of Kokrajhar town under the Kokrajhar part revenue circle of Kokrajhar district and is surrounded by the villages like Rangalikhata Part I, Balagaon No. 2, Samugaon and Halowadol No. 1. It is located at 26˚27′ N latitude and 90˚18′E longitude. The village covers a geographical area of 177 hectare, of which 134.8 hectare as net sown area and 16.8 hectare non-agricultural land. The village has an average elevation of about 55 m. The tributary of Gourang is the nearest river flows about 1 km away towards the western part of the village. The plain topographic character of the village provides ample scope for formation of a number of water bodies in the vicinity of the village. There are 100 households in the village with a total population of 485 and a high sex ratio of 1,021. The village is entirely inhabited by Bodo people. The village has 1 primary school within it, and middle school, secondary school and senior secondary school are within a radius of 5 km and the college 10 km away. The literacy rate of the village is as high as 83.44 per cent with male literacy rate of 91.15 per cent and female literacy rate of 75.77 per cent. About 89.34 per cent of the work-force of the village is engaged in non-agricultural sector comprising industrial labourer, small or large scale business and service sectors. So far

the health infrastructure facility within the village is concerned, it does not have any health institution within the village. However, there is one Balajan community health centre within a distance of 5 km from the village and Kokrajhar civil hospital within a radius of 7 km. The village roads are unmetalled and kutcha. However, it is well connected to major parts of the district through pucca roads.

2) Dawaguri No. 1

Dawaguri No. 1 is a Bodo dominated village of Gossaigaon part revenue circle in Kokrajhar district. Geographically the village is located at 26˚28′N latitude and 89˚54′ E longitude at an average elevation of 51m. Of its total area of 178.6 hectare, 123.8 hectare is net sown area, 27.5 hectare non-agricultural land, 14.2 hectare fallow land and 0.8 hectare barren land. It is a landlocked village being surrounded by Goladangi village in the north, Bhomrabil-I in the east, Dawaguri No. 2 in the south and Gokulkhata No. 2 in the west. The river Sankosh which forms the boundary between Assam and West Bengal is the nearest river flowing at a distance of 2 km from the village. The village is inhabited by 776 peope in 158 households with a sex ratio of 1,010. 62.37 per cent of the village population is ST. The literacy rate of the village is quite low (60.06 per cent). The female literacy rate is only 51.17 per cent. There are 2 primary schools, 1 middle school and 1 secondary school within the village. Nevertheless, one has to go for about 13 km from the village for college education. Out of the total population, as high as 72.55 per cent is non-working. Further, about 52.58 per cent of total work-force is engaged as cultivator. The village has 1 primary health sub-centre to provide the health needs of the entire village. However, one has to travel for about 12 km to get the health care facilities of Gossaigaon sub-divisional civil hospital. So far the source of drinking water is concerned, the villagers have to solely depend on well water and hand pump. The village is devoid of any post office, banking services, etc. within it. Although the roads of the village are kutcha, the village is well connected to other parts of the district through metalled roads.

3) Dolabari Bagicha

Lying towards the north-west of Kokrajhar town Dolabari Bagicha village is located at 26˚24′53.27″N latitude and 90˚13′06.97″E longitude covering an area of 400.2 hectare at an average elevation of about 50 m. Out of the total geographical area, 388.4 hectare is used as net sown area, 5.6 hectare as non-agricultural land and 2.1 hectare as cultivable waste land. The village is surrounded by Dolabari Part II village in the west, Sukanjhora in the south-east and Banglabari Bagicha in the north. The river Gourang is the nearest river of the village.

There are 417 households in the village with population of 1,986. The sex ratio of population is 1,047. The village has literacy rate of 65.57 per cent with female literacy rate of 54.25 per cent only. There is 1 primary school within the village. The high school and college are located at a distance of about 10 km. 89 per cent of the entire population of the village is constituted by tea tribe. About 50.85 per cent of the population is working and out of total workforce, 86.53 per cent is engaged in tea plantations as tea labourers and other workers. So far the basic health care facilities are concerned, there is 1 primary health centre within the village as first contact point for villagers. However, for major health problems one has to go to Kokrajhar civil hospital or other specialized private hospitals in Kokrajhar town. There is 1 pharmacy within the village to cater to the needs of the people. There is also one sub-post office. The village has both pucca and kutcha roads and it is well connected with other parts of the district.

4) Balagaon No. 1

With a geographical area of 262 hectare Balagaon No. 1 Koch-Rajbongshi dominated village is located at 26˚ 29′ N latitude and 90˚ 18′ E longitude. Out of total area of the village, 176.8 hectare is used as net sown area, 49.3 as non-agricultural land and 35.9 hectare for growing miscellaneous trees, crops, etc. The village is surrounded by Balajan village on the north, Diajiri village on the east, Samugaon on the south and the major road connecting NH 31 with Kokrajhar town forms a boundary on the west. The village is inhabited by 1,164 people in 244 numbers of households with a sex ratio of 1,007. The village has a total literacy rate of 76.71 per cent as against female literacy rate of 66.79 per cent. It has 1 primary school, 2 middle schools and 1 secondary school. About 53.35 per cent of its population is worker and out of which 41.54 per cent is solely dependent on agricultural sector. So far the basic healthcare facilities are concerned, one has to go for more than 5 km distance. However, there is 1 pharmacy within the village. The roads are both pucca and kutcha in the village and well connected with other parts of the district.

5) Titaguri No. 2

Located at 26˚26′N latitude and 90˚17′E longitude Titaguri No. 2 village covers a geographical area of 390.7 hectare. Out of its total area 278.8 hectare is net sown area, 68.1 hectare under miscellaneous trees, crops, etc. and 43.8 hectare non-agricultural land. The nearest river gourang forming the western boundary of the village facilitates better irrigation to agricultural land. The village is surrounded by Titaguri No. 1 village on the north, Dimalgaon village on the south, and major road connecting NH 31 with Kokrajhar town

forms the eastern boundary of the village. The village is inhabited by 4,191 population in 818 households. The sex ratio is as low as 838. It is largely inhabited by Bengali speaking people. The village has total literacy rate of 78.93 per cent as against female literacy rate of 68.93 per cent. It has 2 primary schools, 3 middle schools and 1 secondary school within the village. Out of the total population, 41.76 per cent is worker and only 7.08 per cent is engaged in agricultural sector. However, about 74.06 per cent working population is engaged as industrial worker, small business-man, other workers in service sector, etc. The village has 1 health sub centre for maternity consultation. Both the pucca and kutcha roads are present in the village and the village is well connected to other parts of the district.

6) Gokulkhata No. 2

Lying in the Gossaigaon part revenue circle of Kokrajhar district, Gokulkhata No. 2 village is one of the Bengali speaking Muslim dominated village. Located at 26˚27′51.84″N latitude and 89˚53′7.32″E longitude with an elevation of 57m, Gokulkhata No. 2 village covers a geographical area of 115.5 hectare (69 hectare as net sown area, 2.1 hectare land under miscellaneous trees, crops, etc., 0.5 hectare as barren and uncultivable land, 24.9 hectare land under permanent pastures and other grazing lands, 10 hectare as waste and fallow lands and 9 hectare under non-agricultural area). However, the entire net sown area (69 hectare) is without irrigation facility. The village is surrounded by Gokulkhata No. 1 village in the north, Simultapu PGR village in the south, Dawaguri No. 1 and Simultapu No. 1 villages on the east and the state of West Bengal on the west. Comprising of 114 households the village has 549 population with sex ratio of only 874. The village has an average literacy rate of 68.60 per cent. It has 2 primary schools and 1 middle school within the village. But, for higher education the villagers have to travel for more than 10 km. Out of the total population 29.69 per cent is worker and 68.10 per cent is engaged in agricultural sector. There is no health service unit within the vicinity of the village. The entire population of the village has to travel for more than 10 km to access better and higher order health services. The roads are kutcha in the village. However, the village is well connected with the other parts of the district through district roads and NH 31.

7) Guwabari

With a geographical area of 540 hectare Guwabari is a Koch-Rajbongshi dominated village located at 26˚ 25′ 58.38″N latitude and 90˚ 1′17.76″E longitude at an elevation of 53m. Out of total area, 387.8 hectare is under net sown area, 53.2 hectare non-agricultural land and 15 hectare miscellaneous trees, crops, etc. The village shares boundary with Bahbari and

Babubil village on the west, Thuribari on the south-east, Modati on the south, while North-East Frontier railway line forms the boundary on the north. The village is inhabited by 3,276 population in 642 households with a sex ratio of 916. The village has a total literacy rate of 58.96 per cent as against female literacy rate of 49.41 per cent only. It has 6 primary schools and 1 middle school. About 35.01 per cent of the village population is engaged as workforce. 18.22 per cent of the total work force is dependent on agricultural sector. So far the basic healthcare facilities are concerned, 1 primary health sub-centre is present in the village. However, one has to travel for more than 10 km to avail the higher health care services. There are, however, 5 pharmacy within the village. The village has both pucca and kutcha roads and it is well connected with other parts of the district.

8) Serfanguri

Located in the Bengtol revenue circle of Chirang district, Serfanguri is a Bengali speaking Muslim community dominated village. It is located at 26˚38′33.36″ N latitude and 90˚27′35.16″ E longitude at an elevation of 87m. Serfanguri village covers a geographical area of 165.98 hectare with net sown area of 132 hectare, 2.7 hectare under Bengtol reserve forest, 17.6 hectare as fallow land other than cultivable fallow and 13.3 hectare non-agricultural land. The entire net sown area (132 hectare) is under irrigation. The village is surrounded by Deulguri village on the north, Bengtol I village on the south, Bengtol II village on the east, while the western boundary of the village is attached with the Bengtol reserve forest. The village is inhabited by 724 population in 154 households and it has sex ratio of 925. It is mostly inhabited by non-indigenous Muslim community people. The village has total literacy rate of only 42.88 per cent with female literacy of 33.56 per cent. There is only 1 primary school within the village. However, for the middle schooling, higher secondary and higher education, the students have to travel for about 5 to 10 km. Out of the total population, 26.93 per cent is worker and a large part of it (50.26 per cent) is engaged in agricultural sector. There is no health service unit within and in the vicinity of the village and hence village people have to travel a distance of 5 km for availing the services of CHC health unit which opens only in particular time period. The entire population of the village has to travel for more than 14 km to access better and higher order health services like civil hospital located at Kajolgaon or to travel to Bongaigaon. The kutcha roads are present in the village and it is well connected with other parts of the district.

9) Durgapur

With a geographical area of 301 hectare Durgapur is a Koch-Rajbongshi dominated village located at 26˚ 38′ 33.36″ N latitude and 90˚ 28′42.6″ E longitude at an elevation of 86m. Out of total area, 130 hectare is used as net sown area, 10.8 hectare as non-agricultural land, 61.1 hectare as forest cover, 13.4 hectare as pasture and grazing land, 45.7 hectare as the cultivable wasteland and 45.7 hectare as fallow land other than cultivable fallow land. However, there is no irrigation facility in the entire area of the village. The village shares boundary with Rani Sundari and Polashguri village on the east, Bengtol II on the west, Bikrampur on the south, while Kanibur and Aie chara villages form the village boundary on the northern part. It is inhabited by 1,484 population in 354 households and it has a sex ratio of 968. The village has total literacy rate of 66.14 per cent as against female literacy rate of 56.82 per cent. It has only 1 primary school within the village and the facility of middle schooling and college education is within 5 km distance from the village. About 42.38 per cent population of the village is engaged in work. 22.57 per cent of total work-force is solely dependent on agricultural sector. So far the basic healthcare facilities are concerned, there is no health care unit within the village and hence villagers have to go to nearby Bengtol II village for availing the facility of community health centre. However, one has to travel for more than 12 km to avail the higher order health care services. The villagers use Kutcha roads for their communication.

10) Tukrajhar No. 2

Tukrajhar No. 2 is a Christianized Bodo dominated village in the Bengtol revenue circle of Chirang district. Geographically the village is located at 26˚40′31.32″ N latitude and 90˚27′38.16″ E longitude at an average elevation of 110m. It covers an area of 171.8 hectare, of which 105.7 hectare is net sown area, 8.3 hectare non-agricultural land, 19.6 hectare permanent pastures and grazing land and 38.1 hectare as fallow land. There is no irrigation facility in the village. It is surrounded by Burijhar I village on the north, Aie Poali I on the east, Kumguri on the south and Tukrajhar I on the west. The Aie Poali, a tributary of Aie river flows through the village. The village has 110 households and 525 population with a sex ratio of 1,178. Being a Bodo dominated village, 99.05 per cent of village population is ST, mostly belonging to Bodo community professing Christianity. The village has total literacy rate of 67.24 per cent as against female literacy rate of 61.75 per cent. There are 1 primary school and 1 middle school within the village in the public sector. Moreover, there is 1 primary and middle school in the private sector run by the Christian Missionaries.

Nevertheless, one has to go for about 5 km from the village to avail college education. Out of the total population, 54.48 per cent is non worker and 35.56 per cent of total work force is engaged as cultivator. The community health centre at Bengtol is about 5 km away from the village and there is no health care unit in the public sector. However, the village is provided with a memorial hospital under the control of Boro Baptist Church Association since 1956. So far the source of drinking water is concerned, the villagers have to solely depend on well water and hand pump. The road of the village is kutcha and it is well connected to other parts of the district.

11) Bengtol No. 2

Located at a distance of about 12 km on the north of Kajolgaon district headquarters, this village lies in the Bengtol revenue circle of Chirang district and is surrounded by neighbouring villages like Deulguri on the north, Bengtol I on the south, Serfunguri on the west and Durgapur on the east. It is located at 26˚38′22.88″ N latitude and 90˚28′34.29″E longitude. The village covers a geographical area of 225.4 hectare, of which 148.6 hectare is net sown area and 42.2 hectare non-agricultural land. The village is at an average elevation of about 55 m. There are 568 households in the village with a total population of 2,661 and sex ratio of 890. The village is dominantly inhabited by Bodo people. The village has 1 primary school, 2 middle school and 1 secondary school. One college is located 2 km away from the village. The literacy rate of the village is as high as 79.70 per cent. About 76.84 per cent of work-force of the village is engaged in tertiary sector including small or large scale business. So far the health infrastructure facility within the village is concerned, it has 1 primary health cum community health centre and 1 family welfare centre. However, Kajolgaon civil hospital is about 12 km away from the village. The village roads are both metalled and kutcha and it is well connected to other parts of the district.

12) Shupariguri No. 1

With a geographical area of 208.6 hectare Shupariguri No. 1 is a Koch-Rajbongshi dominated village. It is located at 26˚ 29′ 28.14″ N latitude and 90˚ 44′21.66″ E longitude at an elevation of 40m. Out of total area, 129 hectare is net sown area, 14.1 hectare non-agricultural land, 28.6 hectare pasture and grazing land, 10.3 hectare cultivable wasteland, 6.1 hectare fallow land other than cultivable fallow land and 8 hectare miscellaneous trees. But there is no irrigation facility in the village. The village shares a common boundary with Fagunagaon No.1 village on the east, Moneswari village on the west, Bijni gaon on the south and Koptuli village on the north. The village is inhabited by 1,157 population in 253 households. It has a

sex ratio of 1,092. The village has literacy rate of 77.11 per cent. It has 1 primary school and 2 middle schools. The facility for higher secondary and college education is within 5 km distance from the village. About 34.74 per cent population constitutes work-force. Only 21.64 per cent work-force is solely dependent on agriculture. So far the basic healthcare facilities are concerned, there is no health care unit within the village and hence the villagers have to go to nearby Bijni town for availing the facility of dispensaries and private health care units. Besides, one has to travel for more than 30 km to avail the higher order facility of health care services either in Bongaigaon or in Barpeta civil hospitals. The village roads are kutcha. However, North-Eastern Frontier broad gauge railway line passes through the village.

13) Reclamation Block A

Located at a distance of about 6 km on the north of Mushalpur, the district headquarters of Baksa district, this village lies in the Baksa revenue circle. It is surrounded by the villages like Nikashi on the north, Subonsiri on the south and west and Block B on the east. It is located at 26˚42′34.44″ N latitude and 91˚22′2.88″E longitude. The village covers a geographical area of 401.4 hectare, of which 238.3 hectare is net sown area and 2.7 hectare non-agricultural land. The village is at an average elevation of 87m. There are 359 households in the village with a total population of 1,794 and sex ratio of 946. The village is dominantly inhabited by non-tribal Assamese people. The village has 1 primary school, 2 middle school and 2 secondary school. One college is located at a distance of 10 km from the village. The total literacy rate of the village is 74.02 per cent. About 46.82 per cent of work-force of the village is engaged in tertiary sector including small or large scale business. So far the health infrastructure facility in the village is concerned, there is not a single health care unit under the public sector. However, Ravi Boro civil hospital at Mushalpur is only 5 km away from the village. The village roads are both metalled and kutcha and it is well connected with other parts of the district.

14) Dighaldonga

With a geographical area of 215.6 hectare Dighaldonga is an indigenous Muslim community dominated village. It is located at 26˚ 39′ 48.33″ N latitude and 91˚ 22′41.80″ E longitude at an elevation of 98m. The entire population speaks Assamese and follows Muslim religion. Out of total area, 66.2 hectare is net sown area, 53.9 hectare non-agricultural land, 28.2 hectare pasture and grazing land, 32.1 hectare barren and uncultivable land and 35.1 hectare under miscellaneous trees. About 40.2 hectare net sown area of the village is under irrigation.

The village is surrounded by Barbari village on the east, Kataligaon No.1 village on the west, Amarawati village on the north and Dakhinchupa village on the south. The village is inhabited by 756 population in 147 households with sex ratio of 943. Its literacy rate is 70.94 per cent. It has only 1 primary school. The village children have to travel for about 5 km to avail middle school and higher secondary education and more than 10 km for college education. About 46.16 per cent population of the village is engaged as worker. 39.83 per cent of the work-force is dependent on agriculture. So far the basic healthcare facilities are concerned, there is only 1 mini primary health care unit within the village for treating the basic health issues and maternity related issues. For availing the facility of civil hospitals and private health care units one has to go to Mushalpur or to Barama. The roads in the village are Kutcha.

15) Dhansiripur

Located at a distance of about 9 km on the north of Mushalpur, the district headquarters of Baksa district, this village lies in the Baksa revenue circle. It is surrounded by villages like Madhupur on the north, Dumunibagan on the south, Dihira on the west and Nikashi on the east. It is located at 26˚44′37.56″ N latitude and 91˚22′51.66″E longitude at an elevation of 119m. The village covers a geographical area of 560.6 hectare, of which 214.6 hectare is net sown area, 14.6 hectare non-agricultural land and 38.7 hectare under waste and fallow land. The permanent pasture and grazing land covers a large section of area (269.9 hectare) and as such it results in the development of cattle raring as an economic activity in the village. There are 333 households in the village with a total population of 1,817 and sex ratio of 945. The village is dominated by Nepali people. The village has 2 primary school and 2 middle school. However, secondary school and college are 5km and 10 km respectively away from the village. Literacy rate is 62.66 per cent. Its total work participation rate is 40.84 per cent and 11.86 per cent of the work-force is engaged in tertiary sector including small or large scale business. So far the health infrastructure facility is concerned, there is not a single health care institution in the village under public sector. However, Nikashi dispensary is about 8km away and Dr. Ravi Boro Civil Hospital in Mushalpur is 9 km away from the village. The village roads are kutcha and well connected to other parts of the district.

16) Chouraguri

Located at 26˚36′49.38″ N latitude and 90˚59′50.28″ E longitude in Barnagar part revenue circle of Baksa district, Chouraguri village covers a geographical area of 141.9 hectare, with 50.1 hectare as net sown area, 16 hectare under miscellaneous trees, crops, etc., 12.1 hectare

as barren and uncultivable land, 13 hectare as permanent pasture and grazing land, 40.4 hectare area as cultivable waste and fallow land and 10.1 hectare under non-agricultural land. The village lacks irrigation facility. It is surrounded by Kalbari village on the north, Khagrabari village on the west, Dumuguri village on the east and the district Barpeta forms the southern boundary. The village is inhabited by 1,013 population in 194 households with sex ratio of 990. It is dominantly inhabited by Bodo people. The village has an average literacy rate of only 53.02 per cent. It has 2 primary schools. The middle and secondary schools are more than 5km away from the village. 45.51 per cent of total population is worker and 34.92 per cent of the workers are engaged in agricultural sector. The village does not have any health care unit within 10km radius of the village. The roads in the village are mostly kutcha.

17) Barangabari

Barangabari is a Christianised Bodo dominated village in Barnagar part revenue circle of Baksa district. Geographically the village is located at 26˚39′40.98″ N latitude and 91˚1′58.68″ E longitude at an average elevation of 67m. It covers an area of 269.3 hectare, of which 166 hectare is net sown area, 25.4 hectare non-agricultural land, 15 hectare barren and uncultivable land, 28.1 hectare under miscellaneous trees and 34.9 hectare cultivable waste land and fallow land. The village is surrounded on the south by Mayangpara village, Madrijara village on the east, Gyatigaon fringe village on the west. The village has 279 households with 1,358 population and sex ratio of 991. Its literacy rate is 51.94 per cent. There is inadequacy of educational institutions in an around the village except 2 primary schools. However, there is one Christian Missionary school at 10km distance from the village. Out of total population 41.31 per cent is work-force. There is not a single health care unit within a radius of 15km from the village. The roads of the village are kutcha.

18) Songlabari (Honglabari)

Songlabari (Honglabari) is located at 26˚43′41.5″ N latitude and 91˚59′47.8″ E longitude in Udalguri revenue circle of Udalguri district. It covers a geographical area of 187 hectare, of which 161.5 hectare is net sown area, 3.5 hectare cultivable waste and fallow land and 21.9 hectare non-agricultural land. The village lacks irrigation facility. It is surrounded by Niz Ambagaon and Kochpara villages on the north, Baniapara village on the west, Desam river on the east and Bicharchuburi village on the south. The village is inhabited by 533 population with 97 households and sex ratio of 1,132. It is dominantly inhabited by Bodo people. The village has an average literacy rate of 75.05 per cent. It has 1 primary school within the

village and the middle school, secondary school and college are at more than 5km distance. Out of the total workers, 89.62 per cent are engaged in agricultural sector. The village does not have any health care unit. The roads in the village are kutcha.

19) Mantikiri

Mantikiri village is located at 26˚43′06.4″ N latitude and 92˚01′15.1″ E longitude of Harisinga revenue circle of Udalguri district. It covers a geographical area of 272.7 hectare, of which 210.2 hectare net sown area, 44.4 hectare barren and uncultivable land and 18.1 hectare non-agricultural land. There is no irrigation facility in the village. The village is surrounded by No. 2 Phasia village on the north, Kouchpara village on the east and Harisinga station block and NF Railway line on the south. It is inhabited by 1,437 population in 311 households with sex ratio of 960. The village is Bodo dominant. Its literacy rate is 84.91 per cent. It has 1 primary school. But the middle school, secondary school and colleges are more than 5km away from the village. Out of the total population 43.56 per cent is workers. The village does not have any health care unit. However, a dispensary located at Harisinga town is 5km away from the village. The roads in the village are kutcha.

20) Nepaligaon

Located at 26˚47′51.0″ N latitude and 91˚58′42.7″E longitude at an elevation of 141m the village covers a geographical area of 248.4 hectare, of which 198 hectare net sown area, 5 hectare non-agricultural land and 13.1 hectare cultivable waste and fallow land. The permanent pasture and grazing land covers an area of 2 hectare and 20.1 hectare as barren and uncultivable land. Lying on the north-west of Udalguri town Nepaligaon village in the Harisinga revenue circle is surrounded by the villages like Santipur on the north, Nonke Amlaiguri on the south, No.1 Pub Khoirabari on the west and Brangabari on the east. There are 155 households in the village with a total population of 760 and sex ratio of 979. The village is dominantly inhabited by Nepali people. The village has 1 primary school. The secondary school and colleges are located at more than 10 km away from the village. The literacy rate is 60.19 per cent. The village population has a total work participation rate of 26.71 per cent, and of which 71.43 per cent is engaged in agriculture. So far the health infrastructure facility is concerned, there is not a single health care institution in the village under the public sector. The basic health care unit, i.e. dispensary and health sub centre, is more than 18km away from the village. The village roads are kutcha.

21) Khokhagaon

Khokhagaon village is located at 26˚41′05.8″ N latitude and 91˚58′42.7″ E longitude in Harisinga revenue circle of Udalguri district. It covers a geographical area of 127 hectare, of which 104.3 hectare is net sown area, 11.2 hectare cultivable waste and fallow land and 11.6 hectare non-agricultural land. Almost the entire agricultural land excepting 11.5 hectare is under irrigation. The village is surrounded by Bholakash village on the north, Tiklowchuba village on the west, Garkash village on the south and Udalguri revenue circle on the east. It is inhabited by 578 population in 106 households with sex ratio of 973. The village is largely inhabited by tea tribe community. The village has an average literacy rate of 67.07 per cent. It has 1 primary school and 1 middle school within the village. But secondary school and college are more than 5km away from the village. Out of the total population 30.45 per cent constitutes work-force and 94.89 per cent is engaged in agricultural sector. The village does not have any health care unit. The roads in the village are kutcha.

22) Bar Jalah

Located at 26˚39′25.5″ N latitude and 91˚54′18.7″ E longitude at an elevation of 74m in Harisinga revenue circle of Udalguri district, Bar Jalah village covers a geographical area of 120 hectare, with 97 hectare net sown area and 22.8 hectare non-agricultural land. But, about 50 per cent area under cultivation does not have irrigation facility. The village is surrounded by Tangla town on the north-west, Kalaigaon revenue circle on the south and Dakhin Jangalpara village on the east. It is inhabited by 2,387 population in 530 households with sex ratio of 936. The village is dominantly inhabited by non-tribal Assamese people. The village has an average literacy rate of 87.94 per cent. It has 1 primary school within the village, and the middle school, secondary school and college are 2 km away from the village. Out of the total population 30.87 per cent is worker. The village does not have any health care unit within the village. Its roads are both pucca and Kutcha.

23) Pachim Nalbari

Pachim Nalbari, a Bengali dominated village, is located at 26˚39′59.4″ N latitude and 91˚54′12.0″ E longitude of Udalguri district. It covers a geographical area of 104 hectare, of which 68.5 hectare is net sown area and 35 hectare non-agricultural land. About one-third of the agricultural land does not have irrigation facility. The village is surrounded by Sastrapara village on the north, Kukurakata village on the west, Banseria village on the east and Tangla town on the south. It is inhabited by 1,098 population in 236 households with sex ratio of 971. The village population has an average literacy rate of 68.92 per cent. It has 1 primary

school within the village. The middle school, secondary school and college are more than at 2km distance from the village. Out of the total population, 32.97 per cent constitutes work-force and 69.89 per cent are engaged in non-agricultural activities. The village does not have any health care unit. However, the community health centre, primary health centre and other private sector health care units are located within 5km radius of the village. The roads in the village are kutcha.

CHAPTER 3

LITERACY AND EDUCATIONAL PATTERN

Education constitutes one of the most vital elements of human behaviour towards achieving overall socio-economic well-being of an area. It not only raises one's self awareness towards various socio-economic elements but also acts as one of the factors determining demographic attributes like fertility and mortality pattern through improved socio-economic well-being. Education is also a key capability that allows an individual to function in modern society and allows individuals to have choices about what sort of life they may lead (Schultz, 1962). Education trains individuals to acquire, evaluate and use information. It leads to develop effectiveness in learning that enables self direction towards habits, skills, resource and abilities to achieve a better life (Mirowsky and Ross, 2003). It also provides scope to improve in efficiency in health, changing lifestyle habits, time preference for health care, etc. The growth of educational attainment level provides a platform for man's exposure to opportunity along with eradication of certain taboos and superstitions associated with social traditions and customs. It also influences the occupational structure, way of living and various demographic attributes and in bringing about a balanced socio-economic development of an area. A number of studies suggest that higher levels of education open up employment opportunities with better level of incomes. Education is the base of all the progress and development of civilization aiming at evolution of a better man and development of mind (Sharma, 2003). It does not merely mean the eradication of illiteracy, rather it is the mitigation towards the negligence. In total it is the means or way to develop inherent capacities of an individual in the surrounding environment. Thus, education acts as a component of the well-being and living standards of individuals and a vital component for participation in modern society.

In India, a person is considered to be literate if he or she can read and write with understanding in any language. Literacy as an important molding element of demographic attributes acts as an amplifier in the overall development of an area. So far the literacy rate of the Bodoland Territorial Areas District (BTAD) of Assam is concerned, it is considerably lower (66.25 per cent) than the corresponding state average (72.19 per cent) and national average (72.98 per cent). Similarly, about 12.52 per cent of household in BTAD does not

have any literate member within the family, the rate of which is higher than the state (10.82 per cent) and national figure (9.96 per cent) (2011 Census). With this perspective the spatial pattern of literacy rate and educational attainment level in the study area and selected sample villages and urban centres have been analysed in respect of prevailing socio-spatial variation and gender disparity in this chapter.

3.1 Trend in Literacy and its Male-Female Disparity

The study of literacy rate is considered as one of the important parameters for assessing the overall change and development of human behaviour towards achieving a better socio-economic wellbeing. However, the trend of literacy rate has a wide variation all through 1971-2011 and in different parts of the region. The lack of consciousness towards the need of education, lack of availability of number of educational institutions in an around the villages, inequality in the distribution of educational institutions throughout the region, etc. leads to the wide spatio-temporal variation of literacy rate. The literacy rate although increased from 19.54 per cent to 66.25 per cent during 1971-2011 in the BTAD region, it is considerably and consistently lower than the state average and national average throughout the period (Table 3.1 and Fig. 3.1).

Table 3.1: Spatio-Temporal Variation of Literacy Rate in Terms of Male-Female in BTAD, 1971-2011

District	Literacy Rate (in per cent)											
	1971*				2001				2011			
	T	M	F	MFD	T	M	F	MFD	T	M	F	MFD
1.Kokrajhar	20.87	29.29	11.76	17.53	52.77	60.96	43.01	17.95	65.22	71.89	58.27	13.62
2.Chirang	20.00	28.25	10.92	17.33	52.79	62.04	43.01	19.03	63.55	70.24	56.65	13.59
3.Baksa	20.00	29.70	9.74	19.96	59.58	70.33	48.34	21.99	69.25	77.03	61.27	15.76
4.Udalguri	17.59	24.79	9.60	15.19	56.40	65.94	46.33	19.61	65.41	72.57	58.05	14.52
BTAD	**19.54**	**27.95**	**10.42**	**17.53**	**55.77**	**65.24**	**45.50**	**19.74**	**66.25**	**73.39**	**58.89**	**14.50**
ASSAM	**28.14**	**36.70**	**18.60**	**18.10**	**63.25**	**71.28**	**54.61**	**16.67**	**72.19**	**77.85**	**66.27**	**11.58**

* T=Total, M=Male, F= Female, MFD= Male-Female Differentials.

*1971 Literacy Rate includes 0-6 Population (Based on recasting of 1971 data as per 2011 Census administrative boundaries).

Source: Census of India, Assam, Primary Census Abstract, 1971, 2001 and 2011.

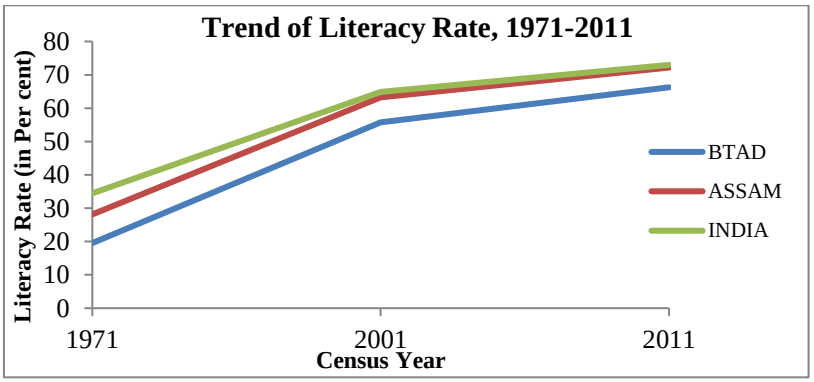


Fig. 3.1

"Educate one man, you educate one person, but educate a woman and you educate the whole family" (Mahatma Gandhi). This statement indicates that female education has a wide connotation for the betterment of the human society. The male-female disparity in education is a persistent problem in Indian society, especially for girls from rural areas and lower socio-economic backgrounds. The patriarchal system of society prevails in these parts of the state and females act as the homemaker of a family. Thus, it is very essential to educate a woman as they have the control to maintain the present generation and build the future generation of a family and have a greater influence in maintaining the better health condition of a family and the society as a whole. The pattern of differences in the male-female literacy reflects the inequality among the male-females and the lower status of women in a society.

It is a country where about 48.53 per cent population is female, despite this out of the total female population about 50.84 per cent of it is still illiterate (Census, 2011). During the past several decades, India has achieved success in moving towards universal school enrollment and in enacting policies to address educational inequalities such as those based on gender. However, education gaps still exist in a large scale which is reflected in the study area, where out of the total female population 57.57 per cent are still unable to get the light of formal education. A number of steps and efforts have been taken throughout the country to mitigate the gap of gender disparity in educational system. The recent policy regarding Beti Bachao Beti Padhao (BBBP) was launched by the Prime Minister on 22nd January, 2015 at Panipat, Haryana to reduce inequality and gender discrimination with strong initiative towards the educational development among the females. The emphasis is given on mindset change through training, sensitization, awareness and community mobilization on ground and to bring about a transformational shift in the way our society looks at the girl child.

The pattern of male-female literacy difference is one of the important indicators to understand the variation of educational development and overall consciousness about the society among the male-female counterparts. In this part of the state, it has been observed that the male literacy rate (73.39 per cent) is found to be significantly higher than the female literacy rate (58.89 per cent). However, both the male-female literacy is consecutively lower than the state figure and also there exists higher gap in male-female literacy (Table 3.1 and Fig.3.2). So far the spatial variation in literacy rate in1971 is concerned, comparatively higher literacy rate was found in Kokrajhar district, while lowest literacy rate was found in Udalguri district. In the latter decades i.e. in 2001 and 2011 Baksa district (69.25 per cent) witnessed significantly higher rate of literacy rate, followed by Udalguri district (65.41 per

cent), while comparatively low level of literacy rate is found in Chirang district (63.55 per cent).

The male-female literacy rate is found to be highest in Baksa district and lowest in Chirang district. Moreover, the gap between the male-female literacy is found to be higher in Baksa district than the other districts (Fig.3.3). Although the overall gap between the male-female literacy rates is on decline in the BTAD region, it is still too far to attain zero level. It has been observed that the male-female differential in literacy is significantly higher in the BTAD region (14.50) than the state's male-female differentials (11.58) (as per 2011 Census). So far the district level variation of male-female literacy difference in BTAD is concerned, somewhat higher gap is found in Baksa (15.76), followed by Udalguri district (14.52) and lowest gap is found in Chirang (13.59) and Kokrajhar (13.62) districts.

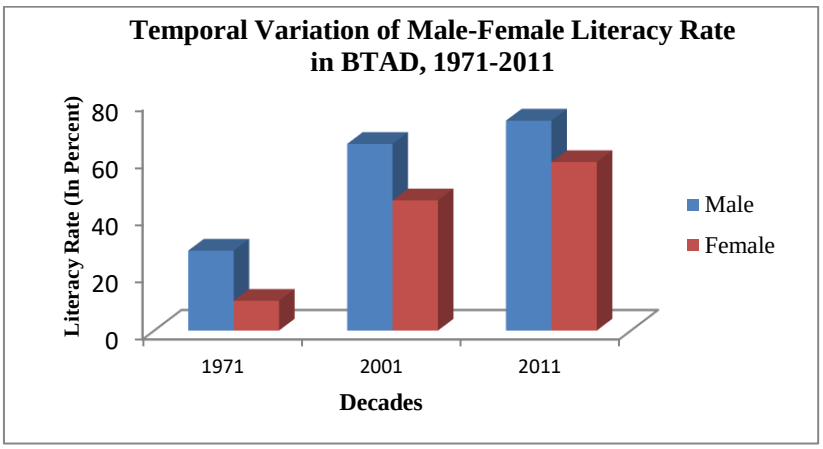


Fig. 3.2

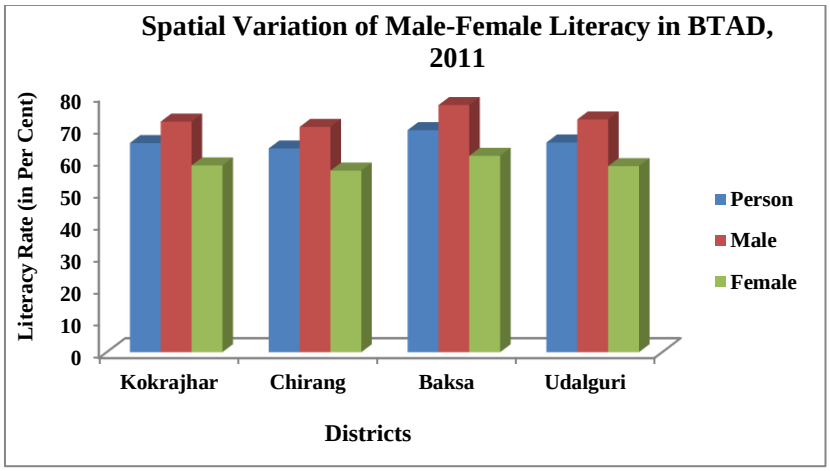


Fig. 3.3

3.2 Spatial Pattern of Literacy and its Male-Female Disparity

So far male-female disparity in literacy at circle level is concerned, Ghograpara (Part) circle of Baksa district witnesses highest gender gap in 1971 (27.41) and in 2011 (19.15), followed by Sarupeta (Pt) circle (17.22), while lowest gap (7.60) is found in Dhubri (Part) circle of Kokrajhar district. Thus, in order to understand the circle level variation with a greater precision between the male and female literacy rate, differential index is found out for the respective circles. It reveals that the disparity between the male-female literacy is declined from 0.90 in 1971 to 0.35 in 2001 and 0.22 in 2011 in BTAD including its different parts (Fig. 3.4, Fig. 3.5 and Fig. 3.6). The higher rate of differential index is found in the Tamulpur circle (0.26) of Baksa district and Mazbat circle (0.26) of Udalguri district, while Dhubri (Pt) circle (0.12) possesses lowest index (Appendix-1). Another very significant aspect of male-female literacy is that about 16 circles having female literacy rate below 10 per cent, 19 circles with 10-20 per cent literates and only 2 circles with 20-30 per cent literates in 1971. On the contrary to this, 3 circles record male literacy of 10-20 per cent, 16 circles with 20-30 per cent, 17 circles with 30-40 per cent and 1 circle with 40-50 per cent. However, male-female literacy has witnessed considerable increase in all the circles of BTAD. It is quite discouraging that 6 circles still witnessed female literacy rate of only 30-40 per cent as against more than 70 per cent in one circle in 2001. But the situation in this respect has improved in 2011 due to increase in the number of circles with female literacy of 70-80 per cent to 6 during 2011 Census (Table 3.2).

Table 3.2: Variation of Male-Female Literacy Rate at Circle Level in BTAD, 1971-2011

Literacy Rate (%)	No. of Revenue Circles (Full and Part)					
	1971		2001		2011	
	Male	Female	Male	Female	Male	Female
0-10		16				
10-20	3	19				
20-30	16	2				
30-40	17			6		
40-50	1		1	17		2
50-60			7	10	1	17
60-70			14	3	11	12
70-80			8	1	13	6
80-90			7		12	
$\overline{X}$	**9.25**	**12.33**	**7.40**	**7.40**	**9.25**	**9.25**
SD	**8.42**	**9.07**	**4.61**	**6.35**	**5.56**	**6.60**
CV	**91.04**	**73.57**	**62.37**	**85.79**	**60.11**	**71.37**

*1971 Literacy Rate includes 0-6 Population (Based on recasting of 1971 data as per 2011 Census administrative boundaries)

Source: Census of India, Assam, Primary Census Abstract, 1971, 2001 and 2011.

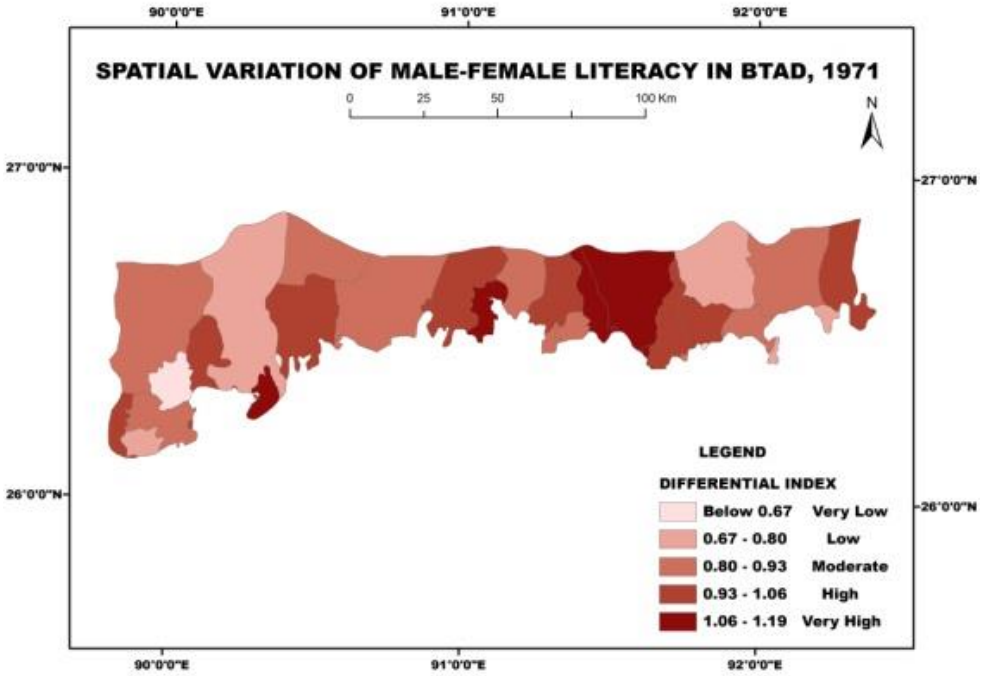

SPATIAL VARIATION OF MALE-FEMALE LITERACY IN BTAD, 1971
0 25 50 100 Km
N
90°0'0"E
91°0'0"E
92°0'0"E
27°0'0"N
26°0'0"N
LEGEND
DIFFERENTIAL INDEX
Below 0.67 Very Low
0.67 - 0.80 Low
0.80 - 0.93 Moderate
0.93 - 1.06 High
1.06 - 1.19 Very High

Fig. 3.4

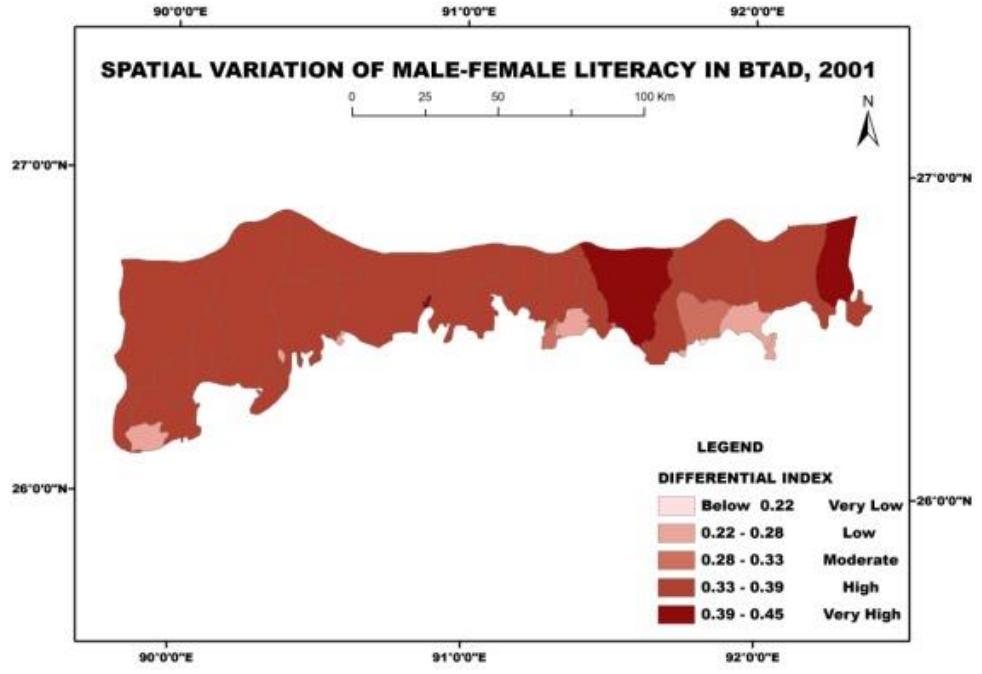

SPATIAL VARIATION OF MALE-FEMALE LITERACY IN BTAD, 2001
0 25 50 100 Km
N
90°0'0"E
91°0'0"E
92°0'0"E
27°0'0"N
26°0'0"N
LEGEND
DIFFERENTIAL INDEX
Below 0.22 Very Low
0.22 - 0.28 Low
0.28 - 0.33 Moderate
0.33 - 0.39 High
0.39 - 0.45 Very High

Fig. 3.5

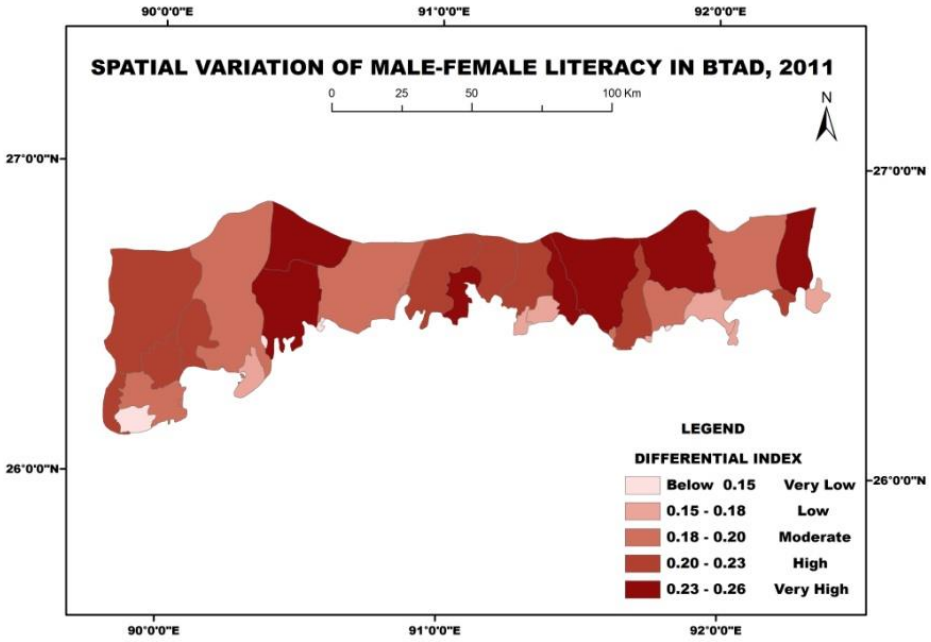


Fig. 3.6

3.3 Literacy Pattern among the Tribal and Non-tribal Groups: Spatial Variation and Male-Female Disparity

The literacy pattern varies significantly throughout the country depending upon diversity of population composition. The overall literacy rate among ST population (49.35 per cent) in the country is significantly lower than the SC (56.46 per cent) and non SC-ST communities (68.19 per cent) of India (2011 Census). However, the state of Assam reveals a somewhat different picture with highest literacy among SC (76.98 per cent) than the ST (72.06 per cent) and non SC-ST populations (71.77 per cent) as a greater proportion of non SC-ST constitutes socio-economically backward population groups of Assam (Table 3.3).

The prevailing diversity in the population composition particularly in respect of ethnicity makes the literacy pattern in BTAD quite varied. In fact, depending on the ethnic background and associated socio-cultural practices, customs and traditions and economic condition, the literacy rate varies significantly from one community to another in the region. It has been observed that the overall literacy rate among the ST population in the BTAD region is slightly higher (69.57 per cent) than the SC population (68.00 per cent) and other than SC-ST population (64.20 per cent), as it includes the other socio-economically backward communities like Koch-Rajbongshi, Nepali, Tea Tribes, non-indigenous Muslims, etc. Similarly, the literacy rate among the SC population is slightly better than the other non SC-ST population due to its less proportion in the population (only 5.57 per cent of the total

population) of BTAD. It is, however, quite discouraging to note that the literacy rate of all the communities in BTAD is significantly lower than the state's averages (Table 3.3).

So far the spatial variation of literacy rate among SC population at district level in BTAD is concerned, Kokrajhar district (73.82 per cent) witnesses the highest literacy rate, followed by Udalguri district (69.26 per cent), while it is found to be the lowest in Chirang district (64.28 per cent). In respect of the ST population, highest literacy rate is found in Udalguri district (71.40 per cent), followed by Kokrajhar district (70.54 per cent), while it is the lowest in Chirang district (64.80 per cent). On the other hand, in respect of non SC-ST population, highest rate of literacy is found in the Chirang district (62.60 per cent), followed by Baksa district (62.24 per cent), whereas Udalguri district (61.98 per cent) records the lowest (Fig.3.7).

Table 3.3: Literacy Rate of Scheduled Castes (SC), Scheduled Tribes Population (ST) and Non SC-ST Population in BTAD, 2011

Districts	Literacy Rate (in Per cent)								
	SC Population			ST Population			Non SC/ST Population		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1.Kokrajhar	73.82	81.62	65.35	70.54	78.04	63.07	62.08	68.37	55.40
2.Chirang	64.28	72.39	55.55	64.80	71.64	58.00	62.60	69.02	55.84
3.Baksa	66.74	75.15	57.82	69.81	78.37	61.27	62.24	76.47	61.73
4.Udalguri	69.26	77.46	60.57	71.40	78.20	64.64	61.98	69.33	54.31
BTAD	**68.00**	**76.21**	**59.24**	**69.57**	**77.12**	**62.06**	**64.20**	**71.06**	**57.00**
ASSAM	**76.98**	**83.17**	**70.44**	**72.06**	**78.96**	**65.09**	**71.77**	**77.19**	**66.08**

Source: Calculated from Census of India, PCA 2011 volume.

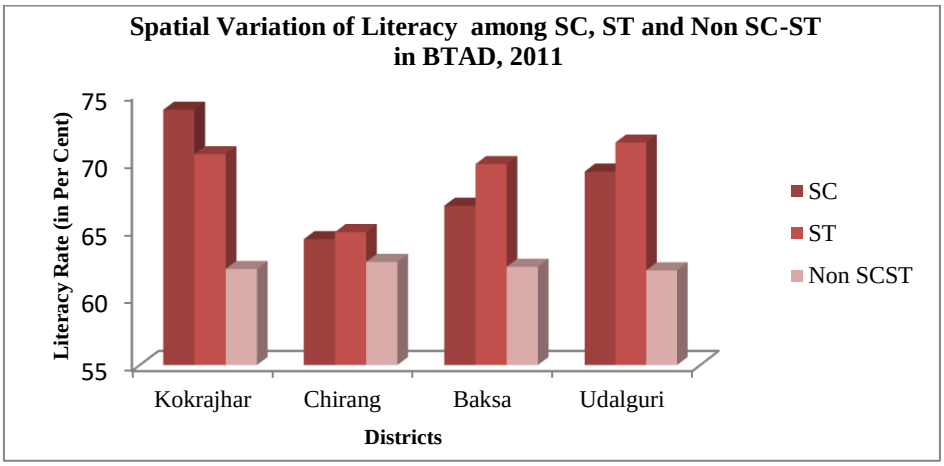


Fig. 3.7

3.4 Inter-Community Variation in Literacy: Field-Based Perspective

In respect of female literacy pattern in the sample areas, the gap between the male-female literacy rates is generally low in the selected urban centres reflecting positive sign of equality in educational development. However, in contrary to these the sample villages have

significantly higher male-female literacy gap. Out of the all sample areas, Pachim Nalbari (27.47) village of Udalguri district, followed by Guwabari (25.75) village of Kokrajhar district have the highest gender gap in respect of literacy rate. The lowest male-female differential is found in the Reclamation Block A (2.68) villages where females get equal opportunity to educate themselves (Table 3.4).

So far the overall intercommunity study of literacy rate of sample villages is concerned, among all the villages, Assamese community dominant villages have the highest literacy rate (88.47 per cent). followed by Koch-Rajbongshi (81.36 per cent) and Bodo (81.07 per cent). The lowest literacy rate is found among the tea tribes (57.48 per cent) and non-indigenous Muslims (57.53 per cent) of the region. Similarly, the highest male literacy rate is found among the Assamese (93.79 per cent) community, followed by Koch-Rajbongshi (91.07 per cent) and Bodo (85.85 per cent) communities. However, it is quite interesting to note that Bodo community represents the lowest male-female literacy difference (9.54) and thus reflects better position of female in terms of literacy (Table 3.4 and Fig. 3.8). But in contrary to this, huge gender gap prevails among the Bengali community (22.86) within the selected sample households. Moreover, the sample urban centres dominated by mixed community have comparatively higher literacy rate than the village counterparts and also have lesser gaps of male-female literacy rates due to the progressive rate of urbanism process and agglomeration of all the services in an around the urban centres. Thus, the study reflects variation of literacy rate among the different communities and presents the dichotomy between the male and female and also rural-urban areas throughout the region.

Table 3.4: Inter-Community Variation of Literacy Rate in BTAD, 2013-2015

Population Group	Literacy Rate (in percentage)			Male-Female Differential in Literacy Rate	DIfferential Index
	T	M	F		
Bodo	81.07	85.85	76.31	9.54	0.12
Indigenous Muslims	73.86	83.22	61.74	21.48	0.29
Non-Indigenous Muslims	57.53	63.96	50.36	13.60	0.24
Koch-Rajbongshi	81.36	91.07	70.47	20.60	0.25
Tea Tribes	57.48	67.38	47.21	20.17	0.35
Bengali Hindu	71.09	84.98	62.12	22.86	0.32
Non-Tribal Assamese	88.47	93.79	82.42	11.37	0.13
Nepali	70.21	76.42	63.78	12.64	0.18
Mixed Community (Urban Areas)	93.53	97.84	89.23	8.61	0.09

Source: Primary Survey, 2013-2015.

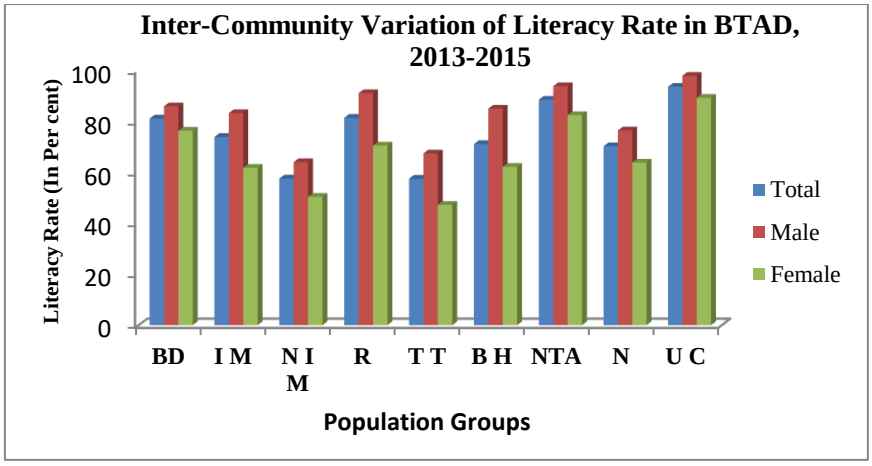


Fig. 3.8

* BD- Bodo, IM-Indigenous Muslims, NIM-Non Indigenous Muslims, R-Koch-Rajbongshi, TT- Tea Tribes, BH-Bengali Hindu, NTA-Non Tribal Assamese, N- Nepali, UC-Urban Centres

3.5 Pattern of Educational Attainment: Spatial Variation and Gender Disparity

Education is a process of enhancing way of living by bringing desirable changes in human behaviour. It symbolizes the quality of human society and it is vitally important for balanced development of any region. The real progress in an area is reflected by its educational attainment, because mere literacy rate could be a liability to the society. Educational attainment makes an individual more effective, developing intellectual skill and other effective traits. It enhances individual's power of exploration, judgment and reasoning capacity and practice of good habits. It has a great influence on occupational stratification and overall stratification of society. The higher level of educational attainment plays an important role in the adoption, practice of healthy habits and maintaining healthy lifestyle. Thus, the study of educational attainment has great significance to understand the prevailing social situation and its impact on the overall health status of a region.

Although the literacy rate among the surveyed areas appears to be quite high, the picture, however, is quite discouraging in terms of educational attainment. It is observed that proportion of literates with educational level of graduation and above (6.30 per cent) including the technical graduates (0.51 per cent) is significantly lower than the proportion of primary, high and HSLC/HS literates in the BTAD region (Table 3.6). In this respect the picture of female is quite discouraging. There is, however, significant spatial variation of educational attainment level among the sample areas. It is found in this context that proportion of graduates and above is significantly higher in the urban centres (21.17 per cent) than the villages (4.30 per cent). In contrary to these the technical/professional

graduates are insignificant and are only 2 per cent in the urban sample areas and 0.31 per cent in the rural areas. Kokrajhar (MB) has much higher proportions of graduates and above (26.56) and technical graduates (3.12 per cent) than the Udalguri (TC). As Kokrajhar town being the controlling unit of BTAD and has a greater accessibility of educational developmental activities also largely influences the educational attainment of the town. On the other hand, it is quite discouraging to note that there are no graduates in the Dolabari Bagicha, Titaguri II, Barangabari, Dighaldonga, and Nepaligaon villages. These villages are socio-economically lagging behind and intrusion of education is a recent phenomenon. However, among the sample villages, Rangalikhata II (29.41 per cent) village of Kokrajhar district has the highest proportion of graduates and above population due to the greater accessibility of educational institutions including the Bodoland University and Central Institute of Technology etc. within the close vicinity and socio-economically progressive village, and it is followed by the Tukrajhar II (24.50 per cent) village of Chirang district where the light of education is initiated by the Christian missionaries (Appendix-2). Subsequently, the Bengtol II (5.55 per cent) village has comparatively higher proportion of technical graduates than the rest of the other villages. The larger proportions of people in the Serfunguri (94.12 per cent) and Chouraguri (91.37 per cent) villages have literate people with below HSLC educational attainment level signifying the higher concentration of unskilled works and poor health awareness. The educational attainment is far from satisfactory in the interior villages, where most of the people are still engaged in subsistence agriculture, dairy farming, small business and unskilled jobs.

So far the intercommunity variation of educational attainment is concerned, the urban centres dominated by the mixed communities have witnessed the higher educational attainment than the rural counterparts. This is due to the availability and accessibility of modern educational system and its fast advancement. The study reveals that the sample urban centres selected have 21.09 per cent of population with educational level general graduates and above and only 2.47 per cent of population have technical graduation and above educational level (Table 3.5). On contrary to these, the sample community-based villages selected for the study reveals a discouraging results. It has been found that there is no graduate in the indigenous Muslim dominated villages due to the slow progress of modern education system and less accessibility of higher educational institution in the village. Similarly, among the socio-economically backward Nepali

community also the higher educational attainment level, i.e. the proportion of graduates and above (0.27 Per cent) is very insignificant. Among the tea tribe community also the proportion of graduates is very nominal (0.64 Per cent). However, the Bodo, one of the dominant communities, has witnessed comparatively higher proportion of educational attainment. 8.33 per cent of Bodo community people have an educational level of graduations and above qualification and only 0.51 per cent of it have technically graduate population. It has been followed by the non-tribal Assamese community population among which also the importance of graduates and above level of higher education is prevalent (5.23 per cent). It has also a minimal proportion of technical graduates (0.37 per cent). The study also reveals that except among the Bodo, Assamese community and in the urban centres, other community villages are still lagging behind and with no persons having the knowledge of technical graduation. In contrary to these, among the Nepali, Tea Tribes, Indigenous Muslims, Non-Indigenous Muslims and Koch-Rajbongshi communities the higher proportion of people below the HSLC level is found out signifying still lower educational progress among the communities (Table 3.5). However, comparatively lower proportion of below HSLC population is there among the Assamese (65.42 per cent) and Bodo (65.80 per cent) community villages. The similar picture is found in the case of the HSLC/HS educational level and it is higher among the Assamese community (28.97 per cent), followed by the Bodo community (25.36 per cent) (Fig.3.9). Thus, the awareness towards the development of modern education system and its importance, economic backwardness, accessibility and in equal distribution of educational institutions are the major causes of low level of educational attainment in the entire BTAD region.

Table 3.5: Educational Attainments as Percentage of Literates at Community Level in BTAD, 2013-2015

Population Groups	Below HSLC			HSLC/HS			General Graduates and above			Technical/Vocational Graduates		
	T	M	F	T	M	F	T	M	F	T	M	F
BD	65.80	60.05	72.24	25.36	29.84	20.35	8.33	9.51	7.01	0.51	0.60	0.40
IM	83.87	97.18	88.72	16.13	2.82	11.28	0	0	0	0	0	0
NIM	83.03	81.72	84.89	14.28	14.72	13.67	2.68	3.55	1.44	0	0	0
R	80.06	80.11	80.00	17.56	16.89	18.49	2.37	3.00	1.51	0	0	0
TT	86.30	86.70	85.83	12.74	12.23	13.38	0.95	1.06	0.79	0	0	0
BH	79.04	75.86	83.54	19.70	22.41	15.85	1.26	1.72	0.61	0	0	0
NTA	65.42	57.99	74.09	28.97	33.33	23.89	5.23	7.99	2.02	0.37	0.69	0
N	87.88	82.09	95.06	11.84	17.41	4.94	0.27	0.50	0	0	0	0
MC	35.75	30.60	41.38	40.69	41.95	39.31	21.09	23.97	17.93	2.47	3.47	1.38

* BD- Bodo, IM-Indigenous Muslims, NIM-Non Indigenous Muslims, R-Koch-Rajbongshi, TT-Tea Tribes, BH-Bengali Hindu, NTA-Non-Tribal Assamese, N- Nepali, MC-Mixed Community (Urban Areas)
Source: Primary Survey, 2013- 2015.

So far the district level variation of the education attainment is concerned, Kokrajhar district possesses higher proportion of both general graduate and above (9.70 per cent) and technical graduate (0.81 per cent). The higher educational attainment both in respect of general graduates (1.90 per cent) and technical graduates (0.10 per cent) is found lowest within the Baksa district. The higher proportion of below HSLC educational level is found in respect of Baksa district (Table 3.6 and Fig. 3.10).

Table 3.6: Educational Attainments as Percentage of Literates in BTAD, 2013-2015

Districts	Below HSLC			HSLC/HS			General Graduates and above			Technical/Vocational Graduates		
	T	M	F	T	M	F	T	M	F	T	M	F
Kokrajhar	59.78	58.06	62.15	29.70	29.92	29.40	9.70	10.61	8.45	0.81	1.41	0
Chirang	70.52	66.73	74.55	20.42	23.08	17.79	8.44	9.61	6.98	0.62	0.58	0.67
Baksa	81.82	75.04	89.91	16.18	22.02	9.21	1.90	2.75	0.88	0.10	0.18	0
Udalguri	73.42	73.42	73.41	21.22	21.21	21.24	5.02	5.18	4.77	0.34	0.19	0.58
BTAD	70.86	68.37	74.13	22.32	24.03	20.13	6.30	6.98	5.37	0.51	0.62	0.37

Source: Primary Survey, 2013- 2015.

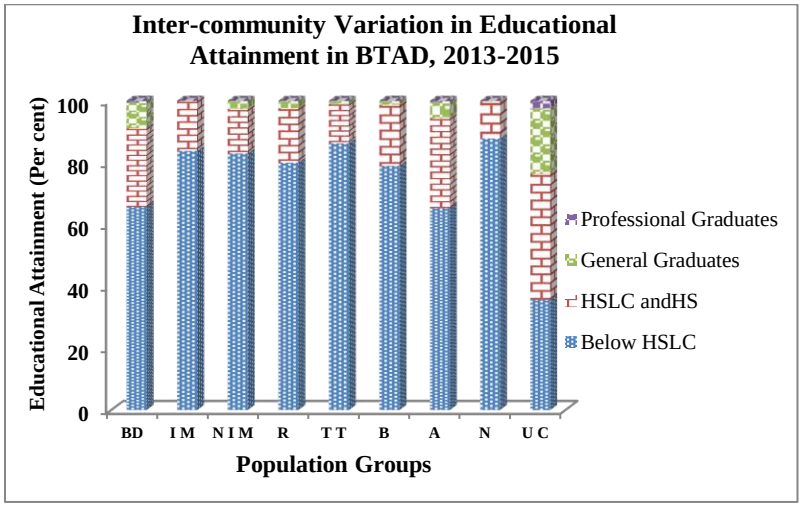


Fig. 3.9

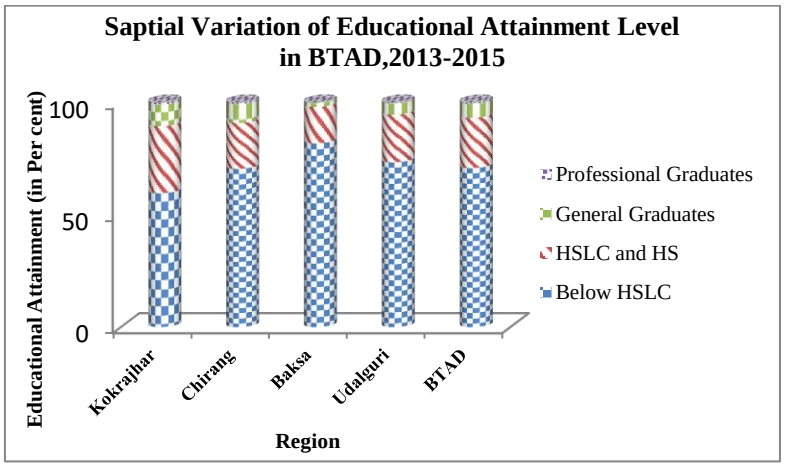


Fig. 3.10

3.6 Age-Specific Variation in Educational Attainment

The study of educational attainment is one of the important indicators to measure the actual progress of education system and its development. It explains the different strata of educational system and level of social change. The study of age-group specific educational attainment with different educational level in socio-spatial context helps to understand the changing trend of educational development among the different social groups in the sample areas. It also portrays comparative social consciousness and educational advancement and educational inequality in the region. The level of higher education influences the socio-economic condition and the demographic attributes of an area. There is a negative relationship between the age group of population and the proportion of literates with educational level graduate and above. Although the attainment of higher education in the sample area is not satisfactory, higher proportion of literates with educational level HSLC and HS and graduate and above is observed in the lower age groups. The proportion of literates with education graduate and above is found to be 9.01 per cent in the age group 22-35 as compared to 5.69 per cent in age group 35-60 and 2.86 per cent in age group 60+. This is indicative of the fact that progress of education is largely a recent phenomenon in most parts of the study area. However, the picture is discouraging in respect of technical/professional graduates and above, where only 0.62 per cent in 22-35 age group as compared to the 0.59 per cent in age group 35-60 and no technical and professional graduates and above in 60+ age group population (Table 3.7 and Fig. 3.11).

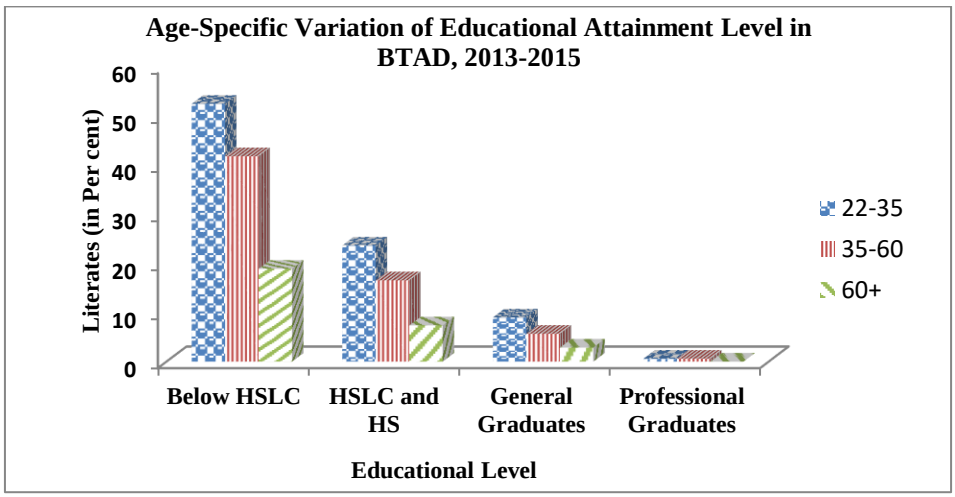


Fig. 3.11

The literates with education graduate and above in the age group 60+ are almost absent in all the sample areas excepting Kokrajhar (MB), Udalguri (TC), Rangalikhata II and

Tukrajhar II. However, there is a significant spatial variation in this respect. So far the educational attainment of sample urban centres is concerned; the Kokrajhar (MB) has the higher proportion of graduates and above educational attainment in all the age groups ranging from 53.45 per cent among 22-35 age group population to 30.43 per cent among 35-60 age groups and 11.43 per cent among 60+ age group population. However, the Udalguri (T.C.) has comparatively higher proportion of graduates and above in the 60+ age group population (13.51 per cent) than the Kokrajhar (MB). In respect of technical/professional graduates and above only the urban sample areas have educational attainment of technical/professional graduates and Kokrajhar (MB) being the centre of BTAD has the highest proportion (5.17 per cent), followed by Udalguri (TC) 2.83 per cent. However, although in today's technical advancement world most of the sample villages have technical/professional graduates in the lower 22-35 age group. It is quite important to note that Rangalikhata II, one of the important villages largely dominated by Bodo community has no technical/professional graduates in the 22-35 age group population, while it has 3.64 per cent of technical/professional graduates and above among 35-60 age groups population. The another sample village 'Reclamation Block A' largely dominated by non-tribal Assamese community also has no technical graduates in the lower age group (22-35), while it has 1.06 per cent of technical/professional graduates in the 35-60 age group population. Thus, it signifies negative trend of educational attainment in the Rangalikhata II and 'Reclamation Block A' villages in respect of technical/professional graduates. However, the highest proportion of technical/professional graduates is found in the Tukrajhar II (5.62 per cent) village of Chirang district, followed by the Bengtol II (1.18 per cent) and Bar Jalah (0.67 per cent) villages in the 22-35 age groups. In terms of graduates and above educational attainment, Rangalikhata II village have highest proportion of graduates and above population in all the age group and is in increasing trend from 20 per cent in 60+ age groups to 30.91 per cent in 35-60 age group and 34.09 per cent among 22-35 age group. It is followed by Tukrajhar II village where it increased from 26.09 per cent in 60+ age groups to 27.96 per cent in 35-60 age group and 28.09 per cent in 22-35 age group. It is quite discouraging to note that Dolabari Bagicha, Titaguri II, Dighaldonga, Nepaligaon and Barangabari villages mostly dominated by Adivasi, Bengali, Nepali and Bodo people does not have any graduates (Appendix-2) in all the age groups. In terms of the HSLC/HS educational level also these villages possesses lower proportion. The larger composition of HSLC/HS educational level is found to be higher in Dawaguri I village (60.67 per cent) in 22-35 age group and followed by Reclamation Block A (55.07 per cent) village. In the 35-60 age groups, Rangalikhata II (32.73 per cent) village has comparatively larger proportion of

HSLC/HS educational level, followed by Tukrajhar II (29.03 per cent) and Reclamation Block A (28.72 per cent) village. The larger proportion of below HSLC educational level is found in the Barangabari village (85.45 per cent) of Baksa district, followed by Durgapur village (81.94 per cent) and Chouraguri village (81.67 per cent) in 22-35 age group (Appendix-3). Thus, the study reveals a slow progress of educational advancement in the sample villages in BTAD.

Table 3.7: Age-Specific Educational Attainment Level in BTAD, 2013-2015

Districts	Educational Level	Age Groups		
		22-35	35-60	60+
Kokrajhar	Below HSLC	81.37	63.13	38.06
	HSLC/HS	31.76	21.86	10.97
	General Graduates and Above	13.14	9.30	3.88
	Technical/ Professional Graduates and Above	0.59	1.14	0
Chirang	Below HSLC	57.22	42.00	17.74
	HSLC/HS	19.72	17.43	14.52
	General Graduates and Above	10.55	9.43	9.68
	Technical/ Professional Graduates and Above	1.67	0.86	0
Baksa	Below HSLC	66.76	54.82	15
	HSLC/HS	20.70	12.69	3
	General Graduates and Above	3.21	2.03	0
	Technical/ Professional Graduates and Above	0	0	0
Udalguri	Below HSLC	56.18	36.72	17.51
	HSLC/HS	22.22	19.07	8.47
	General Graduates and Above	7.20	5.70	2.82
	Technical/ Professional Graduates and Above	0.47	0.18	0
BTAD	Below HSLC	52.47	41.84	18.93
	HSLC/HS	23.67	16.57	7.39
	General Graduates and Above	9.01	5.69	2.86
	Technical/ Professional Graduates and Above	0.62	0.59	0

Source: Primary Survey, 2013- 2015.

The study of district level variation in educational attainment reveals that the proportion of graduates and above population is highest among the Chirang district (9.68 per cent) in 60+ age group population, followed by Kokrajhar district (3.88 per cent) and no graduate is there in the Baksa district. Similarly, among the 35-60 age group population also Chirang district has witnessed highest proportion of graduates and above population. However, the highest general graduates and above population is found in Kokrajhar district (13.14 per cent) in 22-35 age group, and lowest proportion is found in Baksa district (3.21 per cent). In the case of HSLC/HS level educational attainment, Chirang district (14.52 per cent) has witnessed higher ratio than the rest of the districts among the 60+ age groups (Table

3.14). In contrary to this, in 22-35 and 35-60 age groups Kokrajhar district has comparatively higher proportion of population with HSLC/HS educational attainment. The another important aspect of the district level study of educational attainment level reveals that the Kokrajhar district (81.31 per cent) has higher proportion of population having below HSLC educational level. It reflects a negative growth of educational level in the district and low level of social transformation.

3.7 Inter-Community Variation in Educational Attainment: Field-Based Perspective

The intrusion of modern education system among the different ethno-linguistic and religious communities varies with time in this part of the state of Assam. The consciousness towards the formal education is the slow starter in the BTAD area. The influence of higher education is largely concentrated in the urban centres and the proportion of graduates and above (38.41 per cent) educational attainment is found to be higher in the urban sample areas among all the age groups (Table 3.8 and Appendix-4) as urban areas are the interfluves of diverse communities and agglomeration of all facilities. The technical/professional educational attainment is also high and intense in the urban centres and it varies from 3.66 per cent in 22-35 age group to 3.20 per cent in 35-60 age group. However, among all the selected community villages, the influence of higher education is comparatively higher among the Bodo community in terms of general graduates and above (11.02 per cent) and technical/professional educational attainment (1.00 per cent), and closely followed by non-tribal Assamese community (7.34 per cent as general graduates and above and 0.46 per cent as technical/professional graduates) in 22-35 age group population. In contrary to these, the progress of higher education is still lacking among the indigenous Muslim communities.

The technical and professional education is even now unable to influence both indigenous and non-indigenous Muslim communities, Rajbongshis, Tea tribes, Bengali and Nepali communities. Hence, larger section of the population community is still devoid of advance education system. Similarly, the HSLC/HS educational attainment is found to be high among the Assamese community (39.45 per cent) villages, followed by Bodo community (28.55 per cent) villages in all the age groups. However, due to slow progress of higher educational system, the proportion of HSLC/HS educational level is found to be comparatively low in 60+age group population as against 22-35 age groups.

Table 3.8: Age-Specific Distribution of Literates with Educational Level at Community Level in BTAD, 2013-2015

Population Groups	Educational Level	Age Groups		
		22-35	35-60	60+
Bodo	Below HSLC	51.08	37.23	13.87
	HSLC/HS	28.55	20.03	9.49
	General Graduates and Above	11.02	9.40	5.84
	Technical/ Professional Graduates and Above	1.00	0.89	0
Indigenous Muslims	Below HSLC	68.83	45.71	9.52
	HSLC/HS	5.19	14.28	0
	General Graduates and Above	0	0	0
	Technical/ Professional Graduates and Above	0	0	0
Non Indigenous Muslims	Below HSLC	52.78	27.42	5
	HSLC/HS	12.50	12.10	2.50
	General Graduates and Above	6.25	0	0
	Technical/ Professional Graduates and Above	0	0	0
Koch-Rajbongshi	Below HSLC	67.08	56.85	26.67
	HSLC/HS	17.92	10.08	4.44
	General Graduates and Above	3.33	2.42	0
	Technical/ Professional Graduates and Above	0	0	0
Tea Tribes	Below HSLC	46.71	18.49	2.70
	HSLC/HS	11.18	6.85	0
	General Graduates and Above	1.31	0	0
	Technical/ Professional Graduates and Above	0	0	0
Bengali Hindu	Below HSLC	58.22	43.62	21.43
	HSLC/HS	26.03	11.70	4.76
	General Graduates and Above	1.37	1.06	0
	Technical/ Professional Graduates and Above	0	0	0
Non-Tribal Assamese	Below HSLC	52.75	62.96	64.70
	HSLC/HS	39.45	29.01	35.29
	General Graduates and Above	7.34	7.41	0
	Technical/ Professional Graduates and Above	0.46	0.62	0
Nepali	Below HSLC	68.83	47.33	7.69
	HSLC/HS	13.64	4.67	0
	General Graduates and Above	0.65	0	0
	Technical/ Professional Graduates and Above	0	0	0
Mixed Community (Urban Areas)	Below HSLC	17.68	23.60	39.44
	HSLC/HS	39.02	43.60	25.35
	General Graduates and Above	38.41	22.80	12.68
	Technical/ Professional Graduates and Above	3.66	3.20	0

Source: Primary Survey, 2013- 2015.

Educational Development

In order to understand precisely the development of education in socio-spatial perspective, the level of educational development is found out with consideration of both positive and negative indicators of educational development. The development of education system in the region has been analysed on the basis of as many as ten indicators of educational attainment like literacy rate (X_1), male-female differential in literacy (X_2), rural-urban differential in literacy (X_3), percentage of literates with HSLC/HS (X_4), percentage of literates with Graduation and above (X_5), male-female differential in HSLC/HS (X_6), male-female

differential in Graduation and above (X_7), literacy rate in below 20 years of age (X_8), male-female differential in literates below 20 years of age (X_9) and percentage of literates with HSLC and Above in 22-35 age (X_{10}).

The level of educational development at district level reflects distinct scenario as Udalguri (1.70) and Kokrajhar (1.30) districts witness positive level of educational development due to higher educational attainment level and low gender differential as compared to the rest of the districts of BTAD. In contrary to these, the other two districts, i.e. Chirang (-1.57) and Baksa (-1.45) districts indicate still negative educational development (Fig. 3.12). So far the community level educational development is concerned, the mixed community dwelling in the urban areas have considerably higher level of educational development (10.48) as compared to the villages inhabited by different communities.

Table 3.9: Educational Development Level in BTAD, 2013-2015

Population Groups	Composite Z-score Value
Bodo	4.15
Indigenous Muslims	-2.64
Non-Indigenous Muslims	-4.56
Koch-Rajbongshi	-0.82
Tea Tribes	-5.33
Bengali Hindu	-2.99
Non-Tribal Assamese	4.16
Nepali	-1.80
Mixed Community (Urban Areas)	10.48

Source: Calculated Based on Primary Data, 2013-2015.

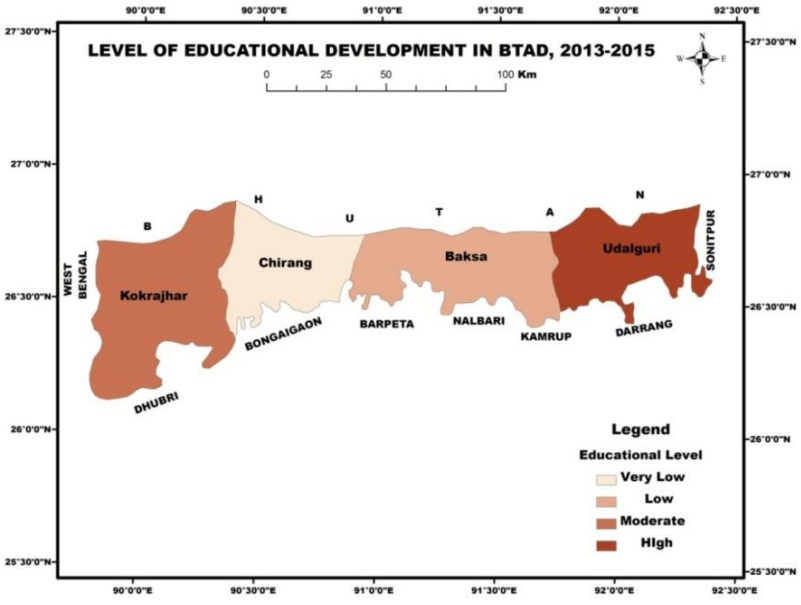


Fig. 3.12

The negative level of educational development is prevalent throughout all the dominant communities excluding non-tribal Assamese (4.16) and Bodo (4.15) communities. However, the lowest level of educational development is found among Tea Tribes community (-5.33) and non-indigenous Muslim communities (-4.56) (Table 3.9). Hence, the progress of education throughout all sections of population is still not up to the mark in the districts of BTAD.

CHAPTER 4

OCCUPATIONAL STRUCTURE AND ASSOCIATED ECONOMIC CONDITION

Occupation, which refers to an economic activity for means of earning a living, plays a very important role towards attaining better livelihood and well-being. Occupational status determines people's place in the social and economic hierarchy. The occupational structure is the most usual approach consisting of classifying people based on their position in the labour market into a number of discrete groups or social classes (Teodora and Danila, 2005). The status of social well-being is largely governed by prevailing economic condition of an area, as it determines the purchasing power, standard of living, quality of life, family size, health condition, etc. The scarcity of food and its quality during infancy and early childhood due to poor economic condition hinders the healthy growth of a society. The prevailing economic condition basically determines the various attributes of demographic characteristics along with the enhancement of educational attainment. Thus, it has a close interrelationship with the educational level associated with various demographic characteristics and socio-economic well-being of an area.

The economic condition of an area can be understood by looking at the proportion of total population engaged in various economic activities. In 1981, the Census of India first attempted to divide the population into two categories as workers and non workers, and workers are again segregated into main workers and marginal workers. Thus, workers are those who participate in any economically productive activity and a person who did not at all work during the reference period was treated as non-worker. On the other hand, the workers who had worked for the major part of the reference period, i.e. 6 months or more are termed as Main Workers and those workers who had not worked for the major part of the reference period, i.e. less than 6 months, are termed as Marginal Workers (Census of India Concepts and Definitions, 2001). In India only 38.80 per cent of the population are workers, and out of which, males have a comparatively higher proportion of workers (53.3 per cent) than that of the females (22.5 per cent). It means that in the country more than 60 per cent population is dependent on the 40 per cent workforce. The state of Assam also reflects the same picture, as only 38.4 per cent population in the state is engaged as workers, with proportions of male and female workers being 53.6 per cent and 22.5 per cent respectively. However, the BTAD

region witnesses slightly a higher rate of work participation (40.83 per cent) including both male work participation rate (53.87 per cent) and female work participation rate (27.38 per cent) (2011 Census) due to larger population is engaged in the agricultural and other primary economic activities. Such a greater proportion of people working in this category has placed a large segment of population in the lower strata in the social and economic hierarchy based on their position in the working environment in the entire region.

4.1 Trend in Work Participation and Its Gender Disparity

The working force as percentage of workers to total population is known as work participation rate in India. The greater the work participation rate, the lesser will be the dependent population in a country. The pattern of work participation rate and occupational structure determines to a great extent the overall economic condition in an area. The prevailing poor economic condition reflected in the study area seems to be one of the major determinants of poor socio-economic well-being in the region. So far the temporal variation of work participation rate is concerned, it is found to be increased from 27.26 per cent to 40.84 per cent during1971-2011 in the BTAD as a whole (Table 4.1 and Fig. 4.1). However, among the districts, Udalguri district recorded highest participation rate in 1971, followed by Baksa district during 2001-2011 (Table 4.1 and Fig. 4.2).

Table 4.1: Temporal Variation in Work Participation Rate in BTAD in Relation to Assam and India, 1971-2011

Districts	Work Participation Rate (in per cent)		
	1971	**2001**	**2011**
Kokrajhar	26.49	36.72	38.45
Chirang	26.63	37.08	40.21
Baksa	26.20	38.36	42.81
Udalguri	29.43	38.35	41.49
BTAD	**27.26**	**37.69**	**40.84**
ASSAM	**27.95**	**35.78**	**38.36**
INDIA	**32.90**	**39.10**	**39.80**

Source: (Based on recasting of 1971 and 2001data as per 2011 Census administrative boundaries). Census of India, Assam, Primary Census Abstract, 1971, 2001 and 2011.

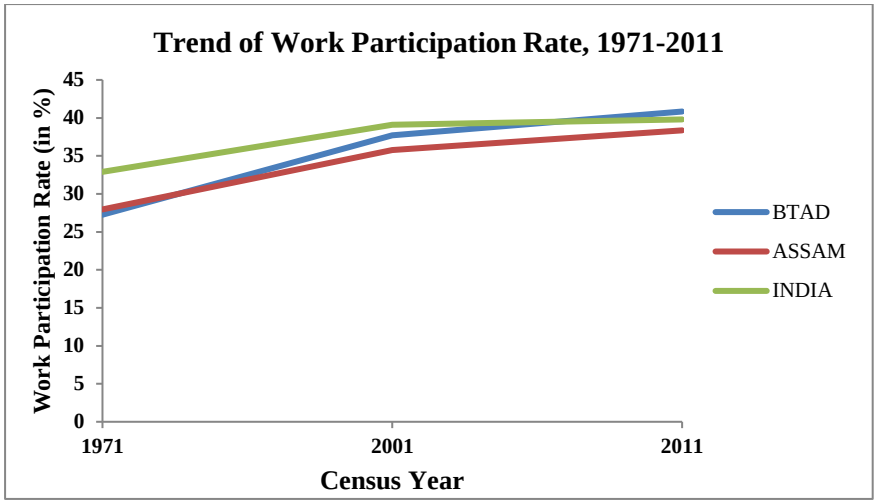


Fig. 4.1

The pattern of work participation rate is greatly influenced by the pressure of dependent population as the lower age group (0-6 age population) and older age groups (above 60 age population) are considered to be dependent on working age groups. The greater proportion of people in the 0-6 age groups and above 60 age groups section lower will be the work participation. Apart from these groups of population, huge section of female population in the country is also dependent on the working class due to gender discrimination in the work participation. The females are not allowed to do some section of works in the society in most of the places throughout the country. There is a wide variation of work participation rate throughout the region in terms of male-female work participation rate. The study of gender differentials in work participation rate helps to understand the overall status of social well-being among the male female populations in a region. The proportion of work participation rate in male (53.87 per cent) is significantly higher than the female (27.38 per cent) counterparts. However, it has been observed that both the male and female work participation rate in BTAD region is comparatively higher than the state's average (53.59 per cent and 22.45 per cent) work participation rate due to larger population engaged in agriculture and other primary sectors. So far the spatial variation in work participation rate is concerned, the considerably higher rate of both male work participation (55.39 per cent) and female work participation (29.90 per cent) is found in the Baksa district, followed by Udalguri district (54.71 per cent for male and 27.88 for females) (2011 Census) as the proportion of 0-6 and 60+ age group population composition is lower (18.58 per cent) in respect of both male (18.51 per cent) and female (18.67 per cent) counterparts in the Baksa district, closely followed by the Udalguri district. However, among all the districts, Kokrajhar

district has the lower work participation rate as it has the highest proportion (20.48 per cent) of population as dependent population in the 0-6 age group and in the 60+ age group.

So far the gender differential in BTAD is concerned in terms of work participation rate, it has been reduced from 46.24 per cent to 26.49 per cent during 1971-2011. The overall variation in gender gap between the male and female work participation rate in BTAD (26.49 per cent) is lower than the state average (31.14 per cent) as female population is largely engaged in economic activities. The gender gap between the male and female work participation rate is considerably higher in the Kokrajhar district (28.04 per cent) and lower rate of gender gap is found in the Chirang district (25.14 per cent) of BTAD in 2011 as it has comparatively low rate of female population (Table 4.2). However, during 1971 the gap between the male-female work participation rate is found to be high in the Baksa district (52.69 per cent), followed by Kokrajhar district (46.48 per cent). During 2001 the higher gender gap is found in the Udalguri district (25.82 per cent) and lowest gap is found in the Kokrajhar district (22.80 per cent).

Table 4.2: Temporal Variation of Male-Female Work Participation Rate, 1971-2011

District	Work Participation (in per cent)								
	1971			2001			2011		
	Male	Female	Male-Female Differentials	Male	Female	Male-Female Differentials	Male	Female	Male-Female Differentials
1.Kokrajhar	48.80	2.32	46.48	47.88	25.08	22.80	52.18	24.14	28.04
2.Chirang	46.41	0.15	46.26	49.22	24.28	24.94	52.59	27.45	25.14
3.Baksa	53.97	1.28	52.69	50.39	25.80	24.59	55.39	29.90	25.49
4.Udalguri	51.40	7.08	44.32	50.94	25.12	25.82	54.71	27.88	26.83
BTAD	**49.42**	**3.18**	**46.24**	**49.63**	**25.19**	**24.44**	**53.87**	**27.38**	**26.49**

Source: (Based on recasting of 1971 and 2001data as per 2011 Census administrative boundaries).
Census of India, Assam, Primary Census Abstract, 1971, 2001 and 2011.

4.2 Spatial pattern of work participation and its gender disparity

The rising work participation rate in all the revenue circles of BTAD during 1971-2011 is indicative of slight improvement in economic scenario in the region (Table 4.2; Fig. 4.2, Fig. 4.3, Fig. 4.4 and Fig. 4.5). During 1971, the work participation rates among the revenue circles had been largely confined to 20-30 per cent belonging to majority 32 revenue circles out of the total of 37 (Table 4.2). In the year 2001, the concentration of revenue circles had shifted to higher work participation of 30-40 per cent. With the continuance of the trend, the concentration of revenue circles had further shifted to even higher work participation rates of 40-50 per cent in 2011. Moreover, the degree of spatial variation in work participation rates

as indicated by the values of Coefficient of Variation has witnessed marked decline during 1971-2011 (Table 4.3).

Table 4.3: Circle Level Variation of Work Participation Rate in BTAD, 1971-2011

Work Participation Rate (%)	No. of Revenue circles (Full and Part)		
	1971	2001	2011
0-10			
10-20	1		
20-30	32	4	1
30-40	4	25	15
40-50		7	21
50-60		1	
$\overline{X}$	12.33	9.25	12.33
SD	17.10	10.78	10.26
CV	138.63	116.56	83.21

(Based on recasting of 1971 and 2001data as per 2011 Census administrative boundaries)
Source: Census of India, Assam, Primary Census Abstract, 1971, 2001 and 2011.

During 1971, the work participation rates among males in the revenue circles had been largely confined to 40-50 per cent belonging to majority 19 revenue circles out of the total of 37 (Table 4.4), while among females it confined to below 10 per cent with 35 circles out of 37. In the year 2001, among male again work participation rate is confined within 40-50 per cent with 22 revenue circles. However, for the same period, with respect to females the concentration of revenue circles had shifted to higher work participation of 20-30 per cent. With the continuance of the trend, the concentration of revenue circles had further shifted to even higher work participation rates of 50-60 per cent in 2011 among males. Moreover, the degree of spatial variation in work participation rates as indicated by the values of Coefficient of Variation has witnessed marked increase during 1971-2011 among males, while among females it declined (Table 4.2).

Table 4.4: Circle Level Variation of Male-Female Work Participation Rate in BTAD, 1971-2011

Work Participation Rate (%)	No. of Revenue Circles (Full and Part)					
	1971		2001		2011	
	Male	Female	Male	Female	Male	Female
0-10		35		3		2
10-20		3		11		5
20-30				17		21
30-40	1			4		6
40-50	19		22	1	2	3
50-60	17		15	1	33	
60-70					2	
$\overline{X}$	**12.33**	**17.50**	**18.50**	**6.17**	**12.33**	**7.40**
SD	**9.86**	**20.51**	**4.95**	**6.46**	**17.90**	**7.76**
CV	**79.99**	**117.18**	**26.75**	**104.81**	**145.12**	**104.94**

(Based on recasting of 1971 and 2001data as per 2011 Census administrative boundaries)
Source: Census of India, Assam, Primary Census Abstract, 1971, 2001 and 2011.

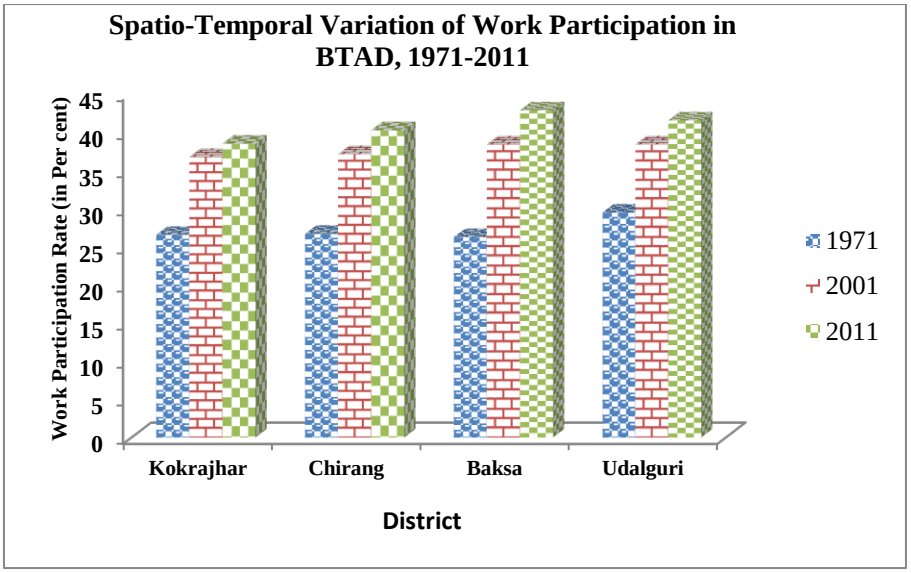

Spatio-Temporal Variation of Work Participation in BTAD, 1971-2011
Work Participation Rate (in Per cent)
45
40
35
30
25
20
15
10
5
0
Kokrajhar
Chirang
Baksa
Udalguri
District
1971
2001
2011

Fig. 4.2

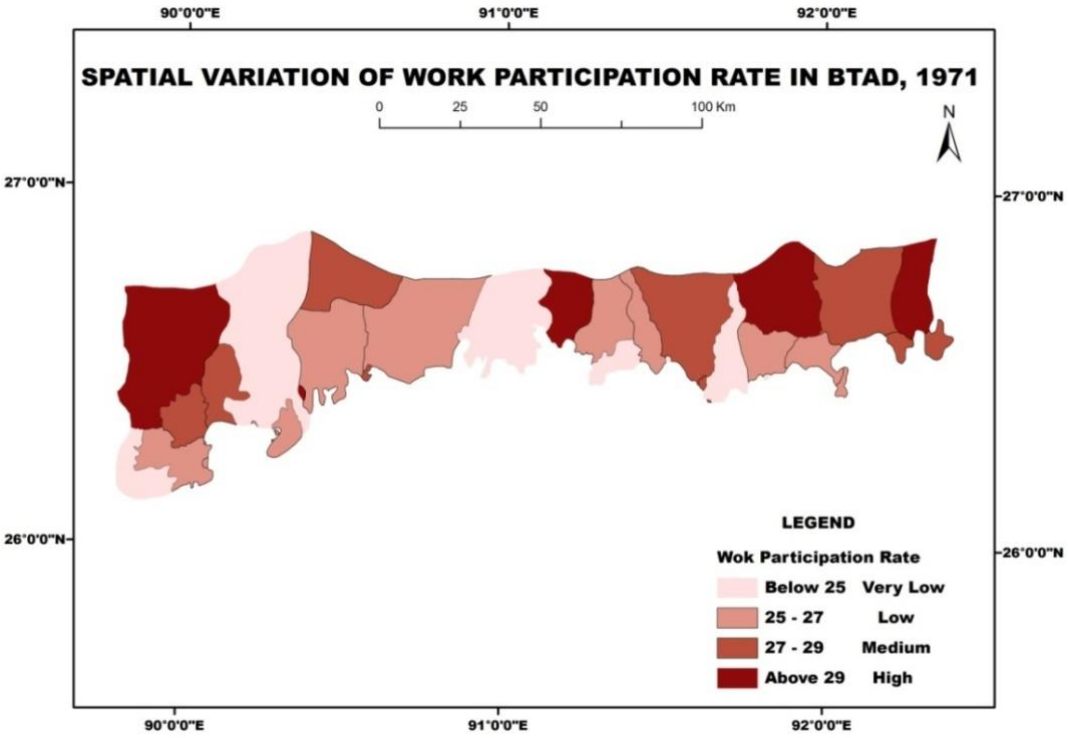

SPATIAL VARIATION OF WORK PARTICIPATION RATE IN BTAD, 1971
0
25
50
100 Km
N
90°0'0"E
91°0'0"E
92°0'0"E
27°0'0"N
26°0'0"N
LEGEND
Wok Participation Rate
Below 25 Very Low
25 - 27 Low
27 - 29 Medium
Above 29 High

Fig. 4.3

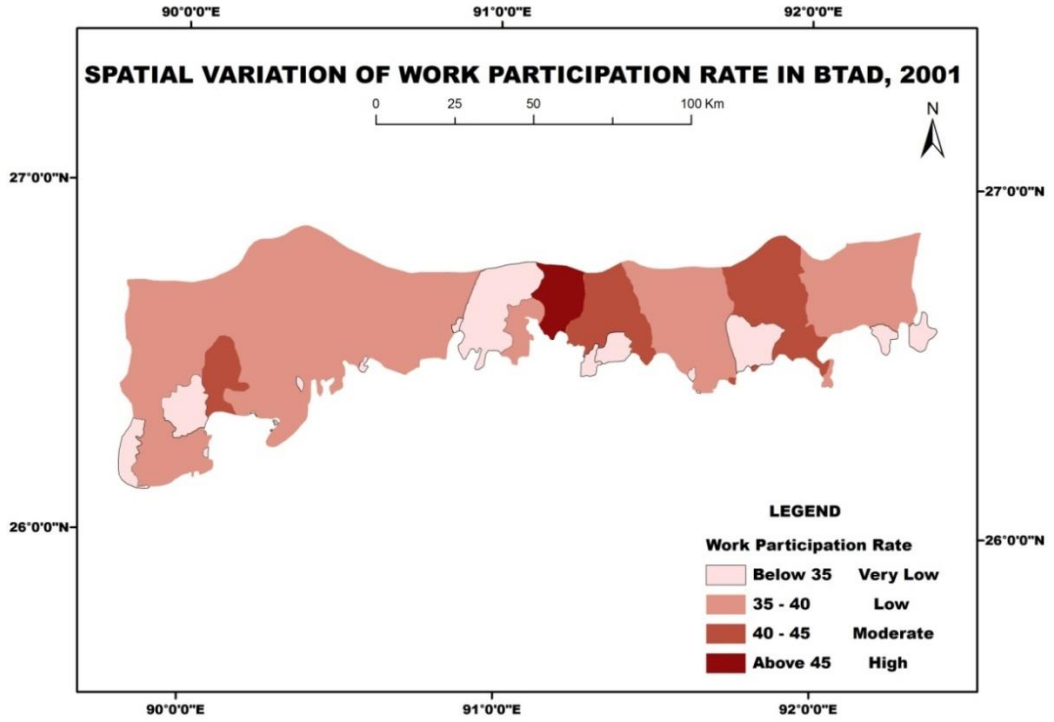

SPATIAL VARIATION OF WORK PARTICIPATION RATE IN BTAD, 2001
0 25 50 100 Km
N
90°0'0"E
91°0'0"E
92°0'0"E
27°0'0"N
26°0'0"N
LEGEND
Work Participation Rate
Below 35 Very Low
35 - 40 Low
40 - 45 Moderate
Above 45 High

Fig. 4.4

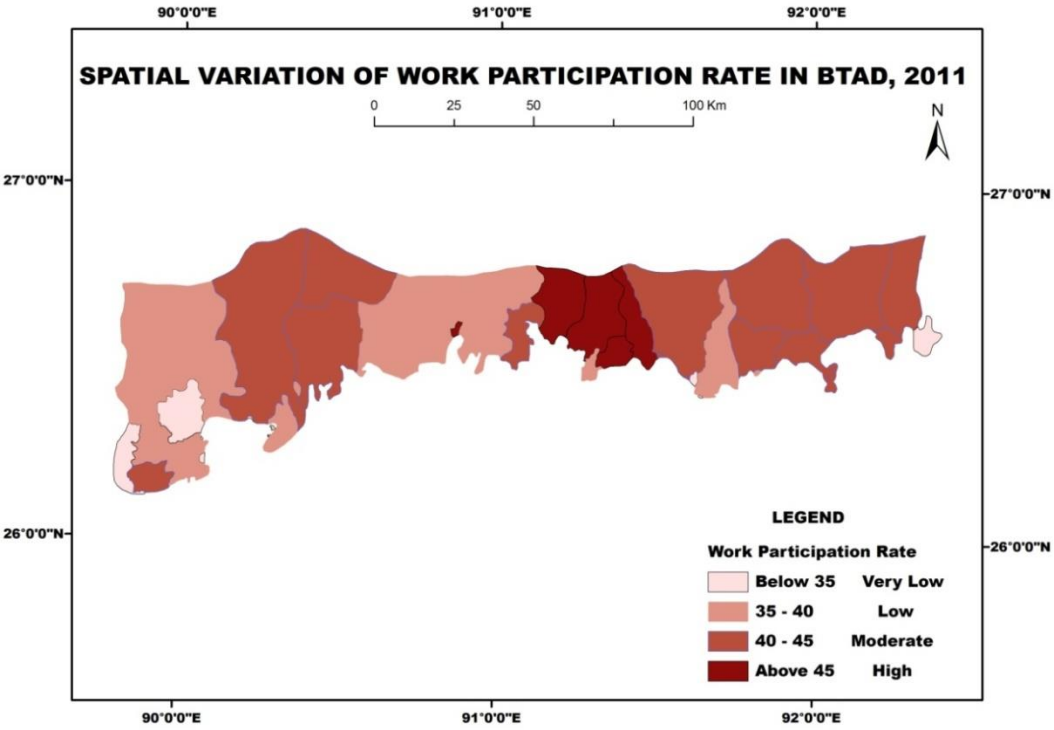

SPATIAL VARIATION OF WORK PARTICIPATION RATE IN BTAD, 2011
0 25 50 100 Km
N
90°0'0"E
91°0'0"E
92°0'0"E
27°0'0"N
26°0'0"N
LEGEND
Work Participation Rate
Below 35 Very Low
35 - 40 Low
40 - 45 Moderate
Above 45 High

Fig. 4.5

4.3 Work Participation among the Tribal and Non-Tribal Groups: Spatial Variation and Male-Female Disparity

The work participation rate varies socio-spatially across the BTAD region. It is considerably high among the ST population (43.14 per cent) in the region as the greater proportion of population is engaged in primary economic activity like agriculture, daily wage labourer, etc. So far the work participation rate among the SC (39.48 per cent) and Non-SC/ST (39.69 per cent) population in the BTAD region is concerned, it is found to be comparatively higher than the corresponding state average (Table 4.5).

Table 4.5: Work Participation among Scheduled Castes (SC), Scheduled Tribes (ST) and Non SC ST population in BTAD, 2011

Districts	Work Participation (in Per Cent)											
	SC Population				ST Population				Non-SC/ST Population			
	T	M	F	Gap	T	M	F	Gap	T	M	F	Gap
1.Kokrajhar	37.99	56.58	17.82	38.76	42.34	51.50	33.15	18.35	36.60	52.27	19.99	32.28
2.Chirang	37.39	53.78	19.96	33.82	43.33	52.04	34.63	17.41	38.51	52.78	23.51	29.27
3.Baksa	41.04	56.79	24.40	32.39	44.31	54.94	33.66	21.28	42.14	55.47	28.30	27.17
4.Udalguri	39.58	58.26	19.92	38.34	42.39	54.55	30.27	24.28	41.16	54.54	27.22	27.32
BTAD	**39.48**	**56.47**	**21.45**	**35.02**	**43.14**	**53.44**	**32.83**	**20.61**	**39.69**	**53.87**	**24.84**	**29.03**
ASSAM	**38.16**	**55.59**	**19.77**	**35.82**	**43.99**	**53.06**	**34.78**	**18.28**	**37.50**	**53.49**	**20.75**	**32.74**

Source: Calculated from Census of India, PCA 2011 volume.

4.4 Inter-Community Variation in Work Participation: Field-Based Perspective

The pattern of work participation rate also varies from one community to another community in the sample areas. Although the overall work participation rate is higher in the rural areas than the urban areas, the primary sample study reveals a contrasting picture. The community wise study reveals that the urban areas have comparatively higher rate of work participation than the sample villages. The higher level of educational progress and social advancement and agglomeration in the urban areas leads to the higher rate of work participation in the study area. So far the intercommunity variation of work participation rate is concerned, among all the communities Bengali community (35.92 per cent) has higher work participation rate, followed by non-tribal Assamese communities (35.70 per cent) and Bodo tribal communities (35.52 per cent) (Table 4.6 and Fig. 4.6). Similarly, the higher male work participation rate is found again among the Bengali community (62.91 per cent), followed by Assamese community (61.24 per cent) and Rajbongshi communities (59.30 per cent). However, the female work participation rate is significantly high among the tea tribe communities (33.44 per cent) due to large scale female population engagement as tea plantation labourers and in other agricultural fields. It is also comparatively high among the Bodo tribal communities (12.60 per cent) than the rest of the others, as the female population

among Bodo communities participate in all economic activities ranging from agriculture to trade and commerce and service sectors. The higher rate of male female difference is there among the Bengali community than the others while there is a very less male female difference among the tea tribes in respect of work participation pattern.

Table 4.6: Variation of Work Participation at Community Level in BTAD, 2013-2015

Population Group	Work Participation Rate (in Per cent)			
	Total	Male	Female	DI
Bodo	35.52	58.31	12.60	1.29
Indigenous Muslims	30.67	52.30	5.92	1.51
Non-Indigenous Muslims	30.48	52.45	6.12	1.52
Koch-Rajbongshi	35.09	59.30	7.29	1.48
Tea Tribes	34.77	36.07	33.44	0.07
Bengali Hindu	35.92	62.91	6.87	1.56
Non-Tribal Assamese	35.70	61.24	8.10	1.49
Nepali	31.51	54.78	6.23	1.54
Mixed Community (Urban Areas)	38.07	57.34	18.57	1.02

Source: Primary Survey, 2013 – 2015.

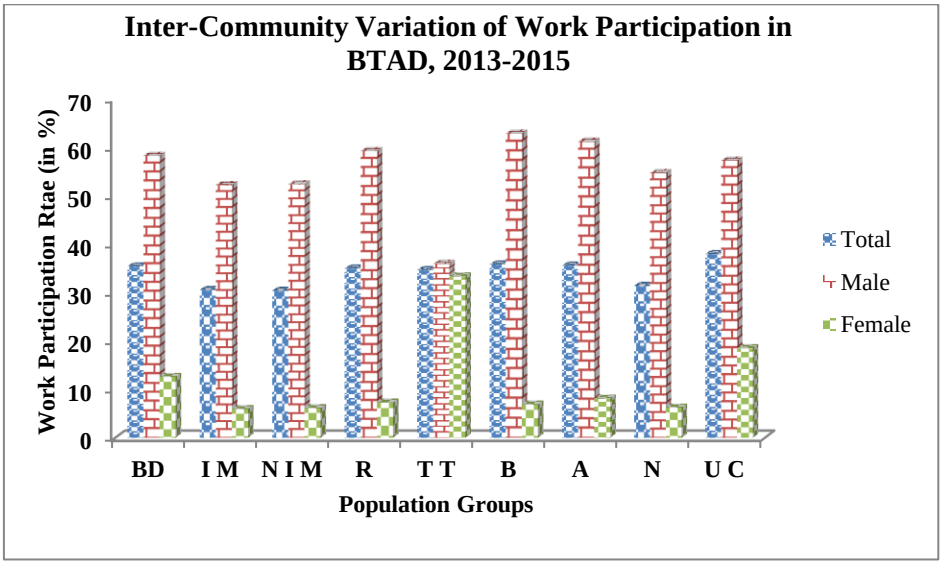


Fig. 4.6

4.5 Pattern of Occupational Composition: Spatial Variation and Gender Disparity

The occupation of an individual basically refers to the type of work or economic activity where he or she is engaged. The study of economic character of population of any area remains incomplete without referring to the occupational composition of its working population. Generally, it is said that higher the proportion of workers in the secondary and tertiary sectors, the better is the economic condition and standard of living among them. The type of work where populations are engaged influence the earning capacity of an individual and its purchasing power and also accessibility of healthcare. The factors like life style,

residential condition, diet, stress, physical exertion, hazards and the ability to consult health care system are directly related to the occupation of an individual. People pursuing occupations with unsteady income are subject to more stress, inadequate diet, poor housing and hazardous living conditions, violence and high mobility (Nalini, 2009). The working environment or the occupation a person performs also has great impact on the health condition of an individual. The comfortable working environment enhances the productive capacity of a person as well as the health. It is therefore a very important measure to understand the socio-economic pattern of the study area.

With the changing occupational structure the population of the study area is found to be engaged in different economic activities, but highest proportion of the total workers is still engaged in the primary economic activities. It is quite discouraging to note that the larger proportions of workers in BTAD are still engaged in the agricultural sectors as cultivators (39.72 per cent) and agricultural labourers (20.12 per cent). The study also reveals that the proportion of agricultural workers (59.84 per cent) in BTAD is higher than the state overall figure (49.35 per cent), whereas the workers engaged in the non-agricultural sector (40.16 per cent) is significantly very lower than the state average non-agricultural workers (50.65 per cent). The proportion of agricultural workers has witnessed decrease from 72.54 per cent to 57.26 per cent during 1971-2011 with the consequent increase of workers in non-agricultural activities (Fig. 4.7). So far the district level temporal variation is concerned, Udalguri district has recorded the highest increase in the proportion of workers in non-agricultural sector (27.46 per cent to 42.74 per cent) during 1971-2011 and throughout three considered decades it has comparatively higher rate of non-agricultural workers. However, Baksa district has the higher proportion of agricultural workers (87.48 per cent and 67.77 per cent) during 1971-2001 period, followed by Kokrajhar district (84.14 per cent) in 1971 and Chirang district (67.17 per cent) in 2001. On the other hand, during 2011 Kokrajhar district has still witnessed the highest proportion under agricultural sector (62.46 per cent) (Fig. 4.8). Further, the occupational composition is examined at circle level during 1971-2011 in order to understand the changing occupational composition with the increase of educational development. It is found that the proportion of non-agricultural workers has increased from 18.75 per cent to 40.76 per cent during 1971-2011 (Table 4.7).

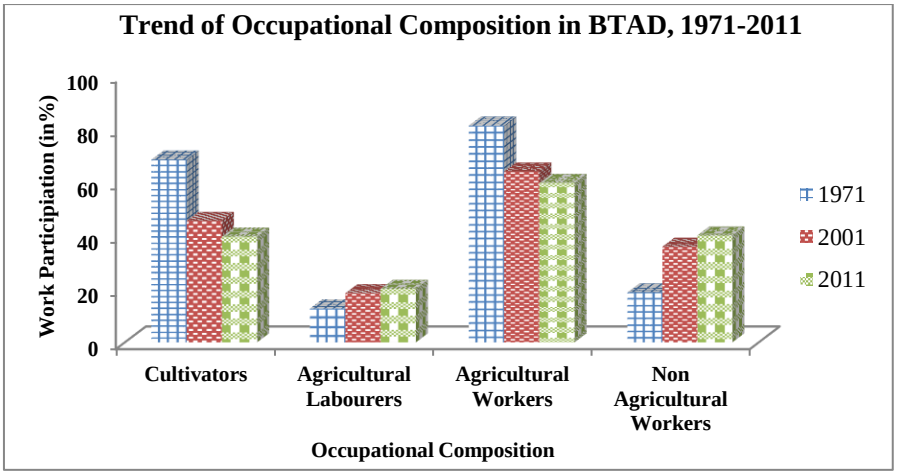


Fig. 4.7

Table 4.7: Occupational Composition Pattern of BTAD, 1971-2011

District	Occupational Composition (in Percentage)											
	1971				2001				2011			
	C	AL	AW	NAW	C	AL	AW	NAW	C	AL	AW	NAW
Kokrajhar	68.14	16.01	84.14	15.85	42.88	22.59	65.48	34.52	45.95	16.51	62.46	37.54
Chirang	68.95	13.34	82.29	17.71	49.07	18.10	67.17	32.82	41.43	18.17	59.59	40.40
Baksa	74.76	12.73	87.48	12.51	49.49	18.27	67.77	32.23	36.70	23.25	59.96	40.04
Udalguri	62.85	9.68	72.54	27.46	42.29	14.39	56.68	43.32	36.18	21.08	57.26	42.74
BTAD	**68.53**	**12.72**	**81.25**	**18.75**	**45.60**	**18.46**	**64.06**	**35.93**	**39.72**	**20.12**	**59.84**	**40.16**
ASSAM	**55.86**	**9.92**	**65.77**	**34.23**	**39.11**	**13.25**	**52.36**	**47.64**	**33.93**	**15.42**	**49.35**	**50.65**

***C-Cultivator, AL-Agricultural Labourer, AW- Agricultural Workers, NAW-Non Agricultural Workers.**

Source: (1971 and 2001 data is Recasted as per the 2011 Census boundary of BTAD), Primary Census Abstract, Census of India 1971, 2001 and 2011.

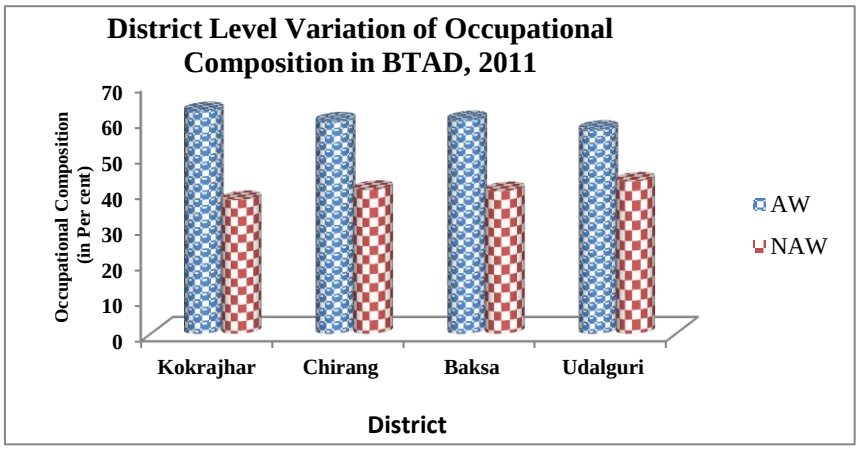


Fig. 4.8

There exists a wide variation in the occupational composition among the circles of BTAD. During the decade of 1971 Mangaldai (Pt) circle (90.70 per cent) of Udalguri district has recorded higher proportion of population engaged as cultivators, followed by Sarupeta (Pt) circle (89.66 per cent) of Baksa district, while agricultural labourers is found to be highest in the Ghograpar (Pt) circle (41.71 per cent) of Baksa district, followed by Golokganj (Pt) circle (22.09 per cent) of Kokrajhar district. However, overall highest proportion of agricultural workers is concentrated in the Golokganj (Pt) circle (97.75 per cent). However,

during 2001 highest proportion of workers engaged as cultivator is found in the Pathorighat (Pt) circle (76.38 per cent) of Udalguri district, and highest proportion of agricultural labourer is found in the Golokganj (Pt) circle (28.25 per cent) of Kokrajhar district. But the overall agricultural workers is found to be the highest in the Chapar (Pt) circle (90.87 per cent) of Kokrajhar district, while lowest proportion of cultivators is found in Mangaldai (Pt) (5.95 per cent). Similarly, highest proportion of agricultural workers is found in the Bilasipara (Pt) circle of Kokrajhar district and Dhekiajuli (Pt) circle of Udalguri district in 2011. On the other hand, it is worth mentioning that the Kokrajhar (Pt) circle of Chirang district has been consistently witnessing the highest proportion of non-agricultural workers during 1971-2011 (Appendix-5).

The study of the pattern of male-female differential in occupational composition which depicts the type of works or economic activities directly or indirectly influence the overall health status of the population in the region. The analysis of the male-female occupational composition pattern in the BTAD reveals that higher proportion of male population in the region is found as cultivators (45.20 per cent), which is significantly higher than the state figure (36.29 per cent). The male work participation as cultivators (16.61 per cent) has always been more than the females in the entire region. So far the district level variation of occupational composition among the male workers is concerned, the participation as cultivator is the highest in Kokrajhar district (48.70 per cent) and lowest in Udalguri district (43.13 per cent). It is, however, discouraging that the proportion of agricultural labourers among the women is higher (28.49 per cent) than the men (16 per cent) in the BTAD. Among the districts, the proportion of agricultural laboures among females varies between 31.54 per cent in Baksa district and 23.89 per cent in Kokrajhar district. In contrary to this, female work participation in the region is found to be higher than male in non-agricultural sector (Table 4.8).

The male-female occupational composition is also found to vary spatially at the circle level. It is revealed that Baganpara (Pt) circle of Baksa district has recorded the highest proportion of male worker engaged in the agricultural sector (20.76 per cent), while female participation in agricultural sector is the highest in Pathorighat (Pt) circle (27.22 per cent) of Udalguri district. On the other hand, in respect of non-agricultural workers, male participation is higher in Pathorighat (Pt) circle (27.23 per cent) of Udalguri district, and female participation is higher in the Baganpara (Pt) circle (20.76 per cent) of Baksa district (Appendix-6).

Table 4.8: Pattern of Male-Female Occupational Composition in BTAD, 2011

District	Occupational Composition (in Percent)											
	Cultivator				Agricultural Labourer				Non Agricultural Workers			
	M	F	MFG	DI	M	F	MFG	DI	M	F	MFG	DI
Kokrajhar	48.70	39.75	8.95	0.19	13.25	23.87	-10.62	-0.64	38.05	36.38	1.67	0.04
Chirang	45.03	34.31	10.72	0.26	13.23	27.92	-14.69	-0.81	41.73	37.77	3.96	0.10
Baksa	43.99	22.84	21.15	0.58	18.85	31.64	-12.79	-0.55	37.16	45.52	-8.36	-0.21
Udalguri	43.13	22.15	20.98	0.58	17.06	29.2	-12.14	-0.57	39.81	48.65	-8.84	-0.21
BTAD	**45.20**	**28.59**	**16.61**	**0.42**	**16.00**	**28.49**	**-12.49**	**-0.62**	**38.80**	**42.92**	**-4.12**	**-0.10**
ASSAM	**36.29**	**28.06**	**8.23**	**0.24**	**13.22**	**20.89**	**-7.67**	**-0.50**	**50.49**	**51.05**	**-0.56**	**-0.01**

* MFG-Male-Female Gap, DI-Differential Index

Source: Primary Census Abstract, Census of India 2011.

4.6 Inter-Community Variation in Occupational Composition: Field-Based Perspective

The occupational composition is also found to vary from one community to another along with variation in work culture. It is quite discouraging to note that quite a large proportion of the sample population in the region is engaged as cultivator (30.34 per cent) and daily wage labourer (26.73 per cent). In contrary to this a smaller proportion of working population is engaged in business (18.98 per cent) and various govt./non-govt. services (23.94 per cent) (Table 4.9). However, there exists a significant variation in this respect from one locality to another.

The analysis of the occupational composition of the sample areas reveals that Kokrajhar, the capital town of BTAD, has the highest proportion of workers in govt. services (57.14 per cent), followed by Rangalikhata II village (49.21 per cent), whereas the lowest proportion is found in the Adivasi village of Dolabari Bagicha in Kokrajhar district (0.59 per cent). However, a large proportion of workers is found to be engaged in private services in Barangabari village of Baksa district (29.49 per cent), where a large section of male workers is associated with tourism activities, followed by Tukrajhar II village of Chirang district (26.49 per cent), where the influence of Christian missionary service is significant and Titaguri II village of Kokrajhar district (21.05 per cent), where a large proportion of workers is engaged as shop keepers and managers. Similarly, business develops as an important work culture among the Bengali communities in the sample areas of BTAD, where Titaguri II village (50.53 per cent) recorded the highest proportion of population in business sector, followed by Udalguri town (42.33 per cent). However, there is hardly anybody in the business sector in the Dolabari Bagicha village and the Serfunguri village of Chirang district. Balagaon I village of Kokrajhar district also has recorded a very low proportion of people engaged in the business sectors. On the contrary to these, larger proportion of cultivators is found in the Mantikiri village (59.43 per cent) and Songlabari village (57.52 per cent), Bodo community dominated villages of Udalguri district (Table 4.9). The daily wage labourers are

found to be significantly higher in the Pachim Nalbari village (46.61 per cent) of Udalguri district, followed by Khokhagaon (43.70 per cent) and Doloabari Bagicha village (43.23 per cent). The larger section of the people in these villages works as daily wage labourers in tea plantation industries, in agricultural field and in business centres.

The district level sample study reveals that the comparatively higher proportion of sample population in business category as their primary occupation is found in the Udalguri district (22.86 per cent) and the lower proportion in the Baksa district (15.87 per cent). However, Kokrajhar district (17.71 per cent) has the higher proportion of population in govt. service sector and lower rate of govt. service sector is found in the Baksa district (9.78 per cent). In terms of private service sector Chirang district (12.25 per cent) has larger proportion. In contrary to these the larger proportion of cultivators as prime occupation is found in the Baksa district (39.56 per cent) and daily wage labourers (27.07 per cent) in the Udalguri district.

Table 4.9: Occupational Composition (in percentage) in BTAD, 2013-2015

District	Dominant Population Groups	Urban Centres/ Villages	Occupational Composition (in percentage)				
			Cultivator	Daily wage Labourer	Pvt. Services	Govt. Services	Business
Kokrajhar	Mixed Community	Kokrajhar (MB)	0.95	1.90	8.57	57.14	31.43
	Bodo	Rangalikhata II	30.16	4.76	4.76	49.21	11.11
		Dawaguri I	36.36	16.16	6.06	22.22	19.19
	Tea Tribes	Dolabari Bagicha	0.88	43.23	5.29	0.59	0.00
	Koch-Rajbongshi	Balagaon I	50.00	23.08	10.26	12.82	3.45
		Guwabari	37.65	29.41	12.94	8.23	11.76
	Bengali Hindu	Titaguri II	4.21	21.05	21.05	3.16	50.53
	Non Indigenous Muslims	Gokulkhata II	43.56	27.72	3.96	5.94	18.81
	Overall		**22.36**	**32.54**	**9.92**	**17.71**	**17.46**
Chirang	Bodo	Tukrajhar II	21.37	4.27	26.49	29.06	18.80
		Bengtol II	27.43	22.12	10.62	16.81	23.01
	Koch-Rajbongshi	Durgapur	38.75	25	7.5	5	23.75
		Shupariguri No.1	38.60	17.54	12.28	14.03	17.54
	Non Indigenous Muslims	Serfunguri	20.72	12.35	0	1.59	1.59
	Overall		**35.01**	**19.91**	**12.25**	**15.10**	**17.72**
Baksa	Bodo	Shouraguri	52.22	25.55	12.22	4.44	5.55
		Barangabari	23.08	34.61	29.49	3.85	8.97
	Non-Tribal Assamese	Reclamation Block A	23.91	9.78	10.87	22.83	32.61
	Nepali	Dhanshripur	57.14	14.28	11.22	5.10	12.24
	Indigenous Muslim	Digholdonga	38.23	31.37	0	11.76	18.63
	Overall		**39.56**	**22.83**	**11.96**	**9.78**	**15.87**
Udal guri	Mixed Community	Udalguri (TC)	4.91	16.56	15.34	20.86	42.33
	Bodo	Mantikiri	59.43	16.04	6.60	8.49	9.43

		Songlabari	57.52	25.93	4.42	13.27	8.85
	Assamese	Bar Jalah	22.69	16.81	17.76	10.92	37.81
	Bengali Hindu	Pachim Nalbari	3.39	46.61	12.71	4.24	33.05
	Tea Tribes	Kokhagaon	38.65	43.70	8.40	4.20	5.04
	Nepali	Nepaligaon	41.93	38.71	5.38	2.15	11.83
	Overall		**30.32**	**27.07**	**9.75**	**9.99**	**22.86**
BTAD			**30.34**	**26.73**	**10.65**	**13.29**	**18.98**

Source: Primary Survey, 2013 – 2015.

The population group-wise study reveals that among the non-indigenous Muslim community (50 per cent) majority people depend on the agricultural sector and work as cultivators in the agricultural fields. Similarly, Nepali community (49.74 per cent) and Rajbongshi community (41.33 per cent) of the sample areas also witness large proportion of workers in cultivation. However, among the Nepali community production of milk and animal rearing constitute the basic primary activities in the study region. But, out of all the communities, the Bengali community (3.75 per cent) witnesses the lowest proportion of workers in the agricultural field. The proportion of daily wage labourer is found to be very high among the tea tribe communities (72.73 per cent) in the BTAD region. It further reflects that this community is the most backward in economic front in the BTAD region and the prevalence of very poor economic condition makes the health status very poor among them. Among Assamese community the proportion of daily wage labourers (13.74 per cent) is found to be very low as compared to the other communities. So far the Govt. service sector is concerned, the participation is found to be highest among the Bodo community (17.59 per cent), followed by Assamese community (16.11 per cent). However, it has been found to be lowest among the Tea tribe community (2.12 per cent) due to relatively lower educational progress among them. The participation in private service as occupation is higher among the Bengali communities (16.43 per cent), as larger section of male population works in private farms. Among the Bengali community business constitutes a major occupation (40.84 per cent) and accordingly forms a prime source of livelihood among them. The Assamese community also has larger proportion of population engaged in the business sector (Table 4.10). However, it has been negligible among the tea tribe communities (1.82 per cent). It thus reflects the prevalence of occupational diversities among the different communities of BTAD region. On the other hand, the urban areas as the hub of different functional activities leading to the growth of private sector, government sector and business sector seem to have higher proportion of population engaged in the business sector and in government service sector. The study of occupational composition of urban centres reveals that 38.06 per cent of

sample population has adopted business as their primary occupation and about 35.07 per cent accepted government service as their occupation.

Table 4.10: Inter-Community Variation of Occupational Composition in BTAD, 2013-2015

Population Groups	Occupational Composition (in percentage)				
	Cultivator	Daily wage Labourer	Pvt. Service	Govt. Service	Business
Bodo	38.90	17.33	12.58	17.59	13.61
Indigenous Muslims	38.23	31.37	0	11.76	18.63
Non-Indigenous Muslims	50.00	30.73	2.08	5.21	11.98
Koch-Rajbongshi	41.33	24.33	10.67	9.67	14.00
Tea Tribes	14.85	72.73	8.48	2.12	1.82
Bengali Hindu	3.75	35.21	16.43	3.75	40.84
Non-Tribal Assamese	23.22	13.74	11.37	16.11	35.54
Nepali	49.74	26.18	8.38	3.66	12.04
Mixed Community (Urban Areas)	3.35	10.83	12.69	35.07	38.06

Source: Primary Survey, 2013 – 2015.

4.7 Inter-Community Variation in Economic Condition in Relation to Occupation: Field-Based Perspective

The term occupation refers to the work in which a person is engaged as a livelihood. Occupational composition also determines the social or economic stratification of population and also the economic condition in an area or society. The study of occupational composition is of paramount importance as it determines the structure of the society and ones social status in the society as per the occupation. The pattern of occupational composition largely determines the economic condition of a country. The larger the proportion of working population in the tertiary sector, better is the economic condition or higher the per capita income in a country. There is a close relationship between the development of an economy and the occupational structure. Economic progress is generally associated with certain distinct, necessary and predictable changes in occupational structure (Clark, 1940). Thus, the change of occupational structure may be an indication of economic growth. In other words, the growth and prosperity of a region are largely dependent on the size of working population.

In India 54.60 per cent of working population is associated with agricultural sector as cultivators or agricultural labourers and have low economic condition which ultimately determines overall health and social well-being of a country. Like the different parts of the country, the working population of the study area is also associated with three types of occupational sectors, viz. primary, secondary and in tertiary sectors. In the primary sector most of the population is engaged as cultivators, agricultural daily wage labourers, plantation

workers, etc., in the secondary sector people are economically engaged as industrial workers mainly in pottery, tea, rubber and small scale household industries, and in the tertiary sector through small and large scale business and various govt. and private services.

Table 4.11: Community Level Variation of Occupational Pattern and Economic Condition in BTAD, 2013-2015

Population Group	Occupational Composition	Number of Workers	Percentage distribution of workers				
			Level of Economic Condition				
			Very Low	Low	Medium	High	Very High
Bodo	Agriculture	303	36.96	27.39	24.42	9.90	1.32
	Wage Labourers	135	78.52	20.00	1.48	0	0
	Trade and Commerce	106	11.32	30.19	28.30	22.64	7.55
	Services	235	5.11	14.47	32.76	29.36	18.30
Indigenous Muslims	Agriculture	43	39.53	30.23	16.28	11.63	2.32
	Wage Labourers	37	51.35	43.24	5.40	0	0
	Trade and Commerce	19	0	31.58	36.84	26.31	5.26
	Services	11	9.09	18.18	45.45	18.18	9.09
Non Indigenous Muslims	Agriculture	96	37.5	33.33	21.87	7.29	0
	Wage Labourers	59	67.80	28.81	3.39	0	0
	Trade and Commerce	22	18.18	13.64	45.45	18.18	4.54
	Services	14	7.14	14.28	42.86	28.57	7.14
Koch-Rajbongshi	Agriculture	127	36.22	26.77	27.56	6.30	3.15
	Wage Labourers	78	43.59	37.18	16.67	2.56	0
	Trade and Commerce	41	21.95	19.51	34.15	17.07	7.32
	Services	59	8.47	13.56	44.07	23.73	10.17
Tea Tribes	Agriculture	51	45.10	35.29	17.65	1.96	0
	Wage Labourers	197	47.21	40.10	12.69	0	0
	Trade and Commerce	6	0	0	66.67	33.33	0
	Services	34	29.41	23.53	32.35	11.76	2.94
Bengali Hindu	Agriculture	8	12.50	50.00	37.50	0	0
	Wage Labourers	75	46.67	34.67	17.33	1.33	0
	Trade and Commerce	87	8.04	12.64	50.57	18.39	10.34
	Services	45	4.44	13.33	48.89	22.22	11.11
Non-Tribal Assamese	Agriculture	50	14.00	22.00	34.00	26.00	4.00
	Wage Labourers	27	22.22	48.15	29.63	0	0
	Trade and Commerce	77	5.19	7.79	50.65	22.08	14.28
	Services	55	1.82	3.64	58.18	25.45	10.91
Nepali	Agriculture	99	39.39	29.29	28.28	3.03	0
	Wage Labourers	47	55.32	38.30	6.38	0	0
	Trade and Commerce	23	8.69	30.43	52.17	8.69	0
	Services	21	9.52	4.76	52.38	28.57	4.76
Urban Centres	Agriculture	11	36.36	27.27	36.36	0	0
	Wage Labourers	29	37.93	37.93	24.14	0	0
	Trade and Commerce	102	2.94	5.88	51.96	23.53	15.69
	Services	128	6.25	12.50	38.28	28.91	14.06

Source: Primary Survey, 2013 – 2015.

So far inter-community variation in occupational composition is concerned, the agriculture is found to be the prime source of livelihood among most of the communities in BTAD excepting the people belonging to Bengali community and non-tribal Assamese community, who are largely engaged in small and large scale business as the main

occupation. It may, however, be mentioned here that due to lack of commercialization of agriculture in the region, most of the people engaged largely in agriculture are experiencing low to very low economic condition. The economic condition among the daily wage labourers engaged in agriculture and industries is found to be even more discouraging. However, the economic condition of the workers engaged in trade and commerce and various services is found to be quite encouraging in comparison to other occupational sectors. This is more so in the case of urban areas (Table 4.11).

CHAPTER 5

DEMOGRAPHIC CHARACTER AND ASSOCIATED PHYSICAL WELL-BEING

Improvement in the standard of living and physical well-being of population has remained one of the important objectives of human development throughout the world. Demographic attributes such as birth rate, death rate, population growth, sex ratio, age composition, age at marriage, child-woman ratio, etc. influence the socio-economic development and well-being of a region among different population groups. The conditions of associated demographic indicators like crude birth rate, death rate, child-woman ratio, sex ratio, infant mortality rate, etc. explain about the overall physical well-being of people. Although the values of these indicators have been witnessing a decline throughout the region, they still depict long process to attain a stable condition. Therefore, the studies of these variables have a great significance to understand the overall state of prevailing physical well-being of the entire BTAD region. In view of this, the spatio-temporal pattern of demographic characteristics based on fertility, mortality, sex ratio, age composition, life expectancy, age at female marriage, etc. in both spatial and social contexts is considered to assess the physical well-being of BTAD region.

The state of Assam that shelters around 3 per cent of the country's population presents a somewhat complex demographic character including rapid population growth and highly diverse population composition in terms of ethnicity, religion and language. Similar structure is also found in Bodoland Territorial Areas Districts (BTAD) of Assam, which constitutes state's 12.35 per cent area and 10.10 per cent population (2011 Census) with an alarmingly high growth rate of population like some other districts of the state. It is striking enough to note that during the period 1971-2011 the region's population has increased from 14.99 lakh to 31.51 lakh. The region also experiences high population growth rate; average annual exponential growth rate has been 1.87 per cent during 1971-2011.

5.1 Fertility Pattern and its Inter-Community Variation

The study of human fertility occupies a central position in the study of population for several reasons. It is responsible for biological replacement and maintenance of the human society. The growth of population entirely depends on fertility pattern, and the natural change in population size is understood through prevailing crude birth rate, child-woman ratio, etc. The

declining trend of fertility is considered to be one of the important factors of social upliftment in the world (Zuanna, 2007). It has been found to be relevant in many studies that the lower fertility patterns have a close connection with the upward movement of a society.

India has succeeded in bringing down the death rate throughout the country. But it has not been able to control the birth rate significantly due to prevalence of early age at marriage in most parts of the country along with the prevailing poverty and low literacy rate and preference for male child. The crude birth rate (CBR), which is defined as the number of live births per 1,000 population in a year, is an important indicator of population growth. It is also closely interlinked with women's health. It is worth mentioning that higher the value of crude birth rate, lower is the overall physical well-being of population in an area. So far the average CBR of India is concerned, it is 20.8 per thousand as against in state average of Assam (22.0 per thousand) and BTAD (24.86 per thousand) (SRS Bulletin, 2016). However, among the districts in BTAD, the CBR is found to be the highest in Baksa district (26.10 per thousand), followed by Chirang district (24.81 per thousand), which exceed the national average (Table 5.1). But contrary to this, Kokrajhar district (17.15) and Udalguri district (21.54) have witnessed slightly higher CBR than the national average, which are of course lower than the state average (Fig. 5.1).

Table 5.1: District Level Variation of Crude Birth Rate (CBR) and Child-Woman Ratio in BTAD, 2013-2015

District	CBR	Child-Woman Ratio
1.Kokrajhar	17.15	3.90
2.Chirang	24.81	3.68
3.Baksa	26.10	3.68
4.Udalguri	21.54	4.19
BTAD	**24.86**	**3.91**

Source: Primary Survey, 2013-2015.

The child-woman ratio is also an important indicator of social well being of an area, as it reflects the physical wellbeing of women population. The economically backward Indian society considers children as an important source of income and economic security for the family. Hence, the child-woman ratio, which is calculated as number of children born to a woman of age up to 45 year, is found to be higher in large part of the country including the state of Assam and BTAD districts (3.91) (Table 5.1). So far the study of child-woman ratio in the districts of BTAD is concerned, Udalguri district witnesses the highest child-woman ratio (4.19) as compared to the rest of its districts (Fig.5.2).

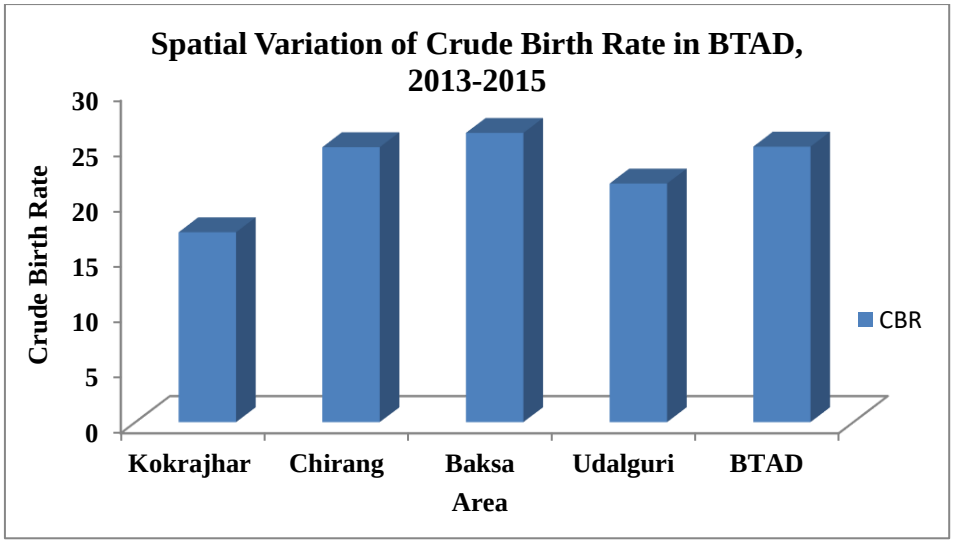


Fig. 5.1

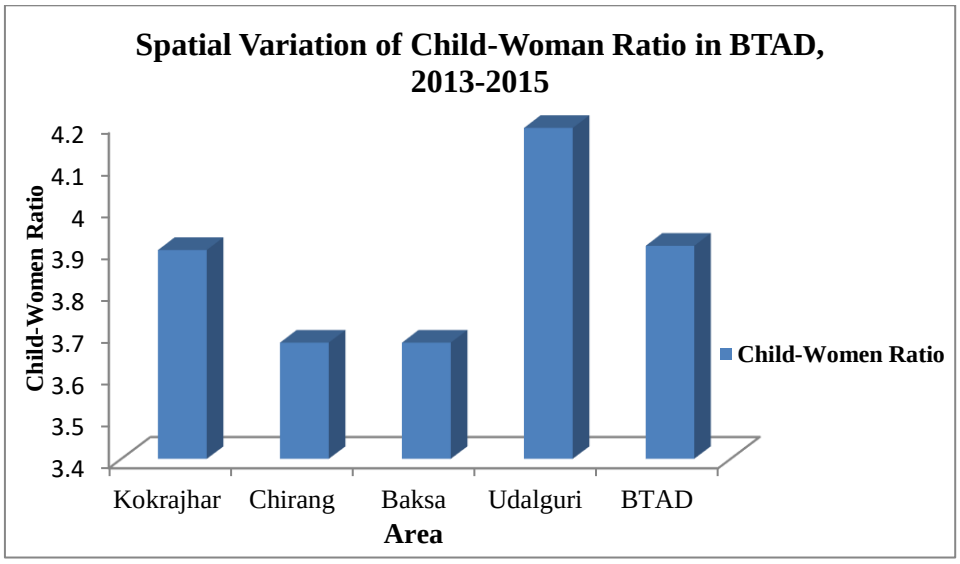


Fig. 5.2

The performance of fertility through measures like crude birth rate and child-woman ratio is also found to vary at community level. CBR among all the communities excluding Bengali Hindu (17.78) and non-tribal Assamese (19.76) communities has still been higher than the national average (20.8), while indigenous Muslim, non-indigenous Muslim, tea tribes and Nepali community have recorded significantly higher CBR than the state average (22) (Table 5.2). However, due to better standard of living the CBR is found to be quite low among the mixed community of urban areas (11.22 per thousand) in the region. Apart from this, the child-woman ratio also varies from one community to another. The community level study reveals that the child-woman ratio is quite high among the socio-economically backward communities like tea tribes (5.60), indigenous Muslims (5.25) and non-indigenous Muslims (5.21). However, it is comparatively better among the non-tribal Assamese

community (3.40), Bodo community (3.55) and people of mixed community (3.27) residing in the urban areas (Table 5.2 and Fig. 5.3). The prevalence of considerably high child-woman ratio particularly among the tea tribes and Muslims of the BTAD region has been primarily due to prevalence of early age at marriage among the females among them.

Table 5.2: Community Level Variation of Crude Birth Rate (CBR) and Child-Woman Ratio in BTAD, 2013-2015

Population Group	CBR	Child-Woman Ratio
Bodo	20.14	3.55
Indigenous Muslims	33.86	5.25
Non Indigenous Muslims	35.39	5.21
Koch-Rajbongshi	20.31	4.17
Tea Tribes	23.95	5.60
Bengali Hindu	17.78	4.03
Non Tribal Assamese	19.76	3.40
Nepali	26.67	3.77
Mixed Community	11.22	3.27

Source: Primary Survey, 2013- 2015.

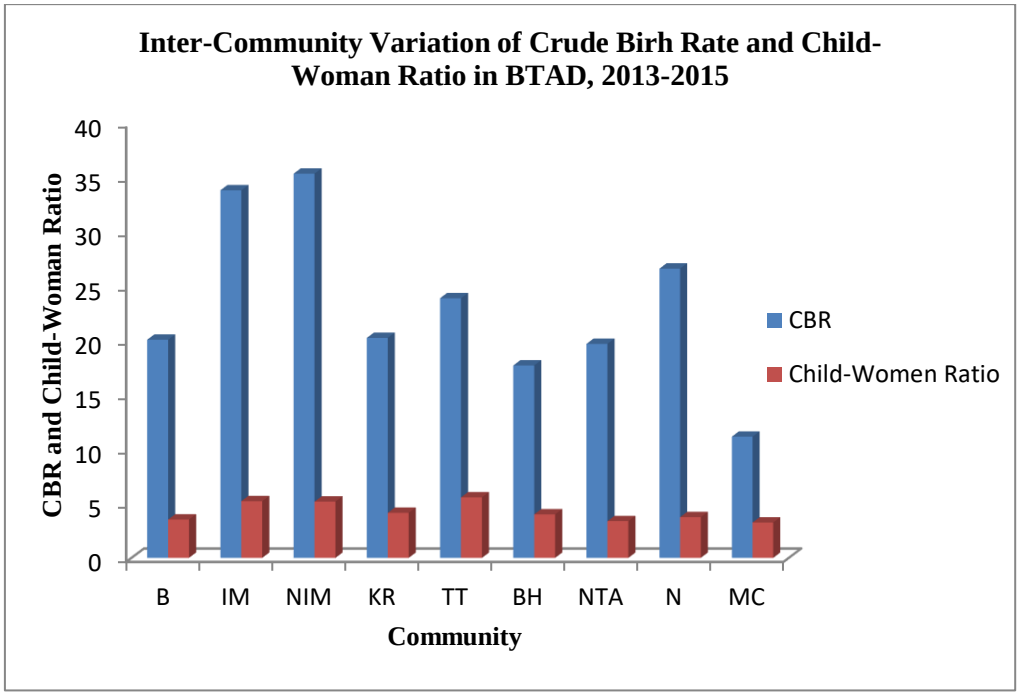


Fig. 5.3

5.2 Mortality Pattern and Its Inter-Community Variation

The death rate or mortality rate signifies the state of physical well-being and higher the rate of death lower is the state of health condition in an area. In India the death rate is 6.5, while the state of Assam has slightly higher death rate (7.1) than it (SRS Bulletin, 2016). It is more so in the case of BTAD (10.44 per thousand). Although with the advancement of medical science and public health services throughout the country, the rate of death has been declining abruptly from that of the pre-Independence period in most parts of the country, it is

still quite high in the districts like Kokrajhar (13.88 per thousand) and Udalguri (10.99 per thousand) of the BTAD region. The death rate is, however, relatively less in Chirang (7.91 per thousand) and Baksa (7.16 per thousand) districts of the region (Table 5.3).

The pattern of child mortality is considered one of the most important indicators to understand the state of mortality pattern in the region. The child mortality is the incidence of death of child below the age of five. The trend of child mortality rate both in terms of infant mortality rate (IMR) and under-5 mortality rate (U5MR) shows a slow decline in India as a whole. Infant Mortality Rate is the number of deaths of children less than one year of age in a given year per 1000 live births in that year. Although IMR of the country has declined from 129 in 1971 to 37 in 2015 and from 139 to 47 during 1971-2015 in the state of Assam, the BTAD region still experiences considerably high IMR (50.26 per thousand) and U5MR (63.10 per thousand) (Table 5.3). At district level also the IMR is found to be as high as 55.95 in Kokrajhar district, followed by Udalguri district (50.20 per thousand), and it is somewhat low in Baksa district (46.24 per thousand). However, in the case of U5MR the Baksa district records the highest (65.69 per thousand), closely followed by Udalguri district (64.97 per thousand) (Table 5.3).

Table 5.3: Spatial Variation of CDR, IMR and U5MR in BTAD, 2013-2015

District	CDR	IMR	U5MR
1.Kokrajhar	13.88	55.95	60.76
2.Chirang	7.91	49.08	55.04
3.Baksa	7.16	46.24	65.69
4.Udalguri	10.99	50.20	64.97
BTAD	**10.44**	**50.26**	**63.10**

Source: Primary Survey, 2013- 2015.

There exists marked inter-community variation in CDR in the BTAD region. Due to lack of adequate health consciousness and awareness and prevalence of low level of health care accessibility the CDR is still quite high among the tea tribes. It is also the same even among the non-indigenous Muslim community and Bengali Hindu community of the BTAD region as against the national average (6.5) and state average (7.1). The picture is, however, slightly better among the non-tribal Assamese community (6.24) (Table 5.4).

The status of child health is also reflected through both Infant Mortality Rate (IMR) and Under 5 Mortality Rate (U5MR). So far child mortality rate in respect of IMR is concerned, it is somewhat encouraging among the mixed community of urban areas of BTAD (32.43) as compared to the corresponding national figure (37). However, the situation in this respect among all communities of BTAD excepting non-tribal Assamese community (45.61)

is far from satisfactory than the national average (47). The highest IMR has been observed among the tea tribe community (59.46) as compared to other population groups in the BTAD (Table 5.4). Similarly, in terms of U5MR also the picture is quite discouraging among tea tribe community (70.59 per thousand) and Bengali Hindu (70 per thousand) dominated villages (Table 5.4).

Table 5.4: Inter-Community Variation of CDR, IMR and U5MR in BTAD, 2013-2015

Population Group	CDR	IMR	U5MR
Bodo	8.48	50.00	59.63
Indigenous Muslims	7.67	56.60	68.29
Non Indigenous Muslims	13.02	54.72	63.01
Koch-Rajbongshi	10.75	54.54	60.27
Tea Tribes	17.80	59.46	70.59
Bengali Hindu	12.31	53.85	70.00
Non Tribal Assamese	6.24	45.61	60.00
Nepali	10.26	51.85	64.00
Mixed Community	10.65	32.43	55.32

Source: Primary Survey, 2013- 2015.

5.3 Trend in Sex ratio and Its Spatial Variation

Sex ratio, expressed as number of females per thousand males of a population group or an area, is an important attribute of demographic character of any area. The major concern of demographers and population planners has been the impact on family size of parental preferences for the sex of their children, especially in patriarchal developing societies in Asia. If parents continue to bear children until they reach their desired sex combination of children or their desired number of sons, sex preference would be a major barrier to fertility reduction (Park and Cho, 1995). The preference for son or the prevalence of attitude that sons are more important and more valuable than daughters for economic or social reasons leads to lowering of sex ratio in many parts of India. In some of the Indian societies adult sons are expected to provide economic support for their parents at old age, while daughters may represent a substantial economic burden in places where their parents provide a dowry. The parents consider the sons more valuable as compared to daughters, presumably greater the parents' desire for a high ratio of sons to daughters (Clark 2000). Apart from this, the development of technology related to sex determination of foetus also accelerates the son preference in most parts of the country leading to social disruption and instability like women abduction for marriage etc (Bhaskar, 2011).

So far BTAD is concerned, the overall sex ratio is quite encouraging as compared to the state average during the last four decades (Table 5.5 and Fig. 5.4). Spatially the sex ratio

is considerably higher in Baksa (974), followed by Udalguri (973) and lower in Kokrajhar district (959) (2011 Census).

Table 5.5: Spatio-Temporal Variation of Sex Ratio in BTAD, 1971-2011

District	Sex Ratio		
	1971	2001	2011
1.Kokrajhar	927	946	959
2.Chirang	923	948	969
3.Baksa	926	957	974
4.Udalguri	902	952	973
BTAD	**919**	**951**	**968**
ASSAM	**896**	**935**	**958**

Source: Census of India, Assam, Primary Census Abstract, 1971, 2001 and 2011.

So far the circle level variation of sex ratio is concerned, Pathorighat (Pt) circle of Udalguri district records higher sex ratio in favour of female (1012), followed by the Jalah (Pt) circle (1006) of Baksa district, while it is lower in Bilasipara (Pt) circle (928) of Kokrajhar district (Table 5.6). However, such a significant variation of sex ratio in the region is governed by the other social factors like the level of educational attainment and prevailing social customs and traditions of the communities concerned.

Table 5.6: Circle Level Variation of Sex Ratio in BTAD, 2011

District	Revenue Circles	Sex Ratio (2011)
KOKRAJHAR	Bagribari (pt)	967
	Bhawraguri	949
	Bilasipara (pt)	928
	Chapar (pt)	969
	Dhubri (pt)	964
	Dotoma	966
	Golokganj (pt)	956
	Gossaigaon (pt)	955
	Kokrajhar (pt)	959
	Overall	959
CHIRANG	Barnagar (pt)	997
	Bengtol	968
	Bijni (pt)	975
	Bongaigaon (pt)	994
	Kokrajhar (pt)	953
	Sidli (pt)	960
	Overall	969
BAKSA	Baganpara (pt)	967
	Bajali (pt)	980
	Barama (pt)	973
	Barnagar (pt)	955
	Baksa	983
	Ghograpara (pt)	985
	Goreswar (pt)	974
	Jalah (pt)	1006
	Pathorighat (pt)	939

	Rangia (pt)	964
	Sarupeta (pt)	994
	Tamulpur	966
	Tihu (pt)	978
	Overall	974
UDALGURI	Dalgaon (pt)	963
	Dhekiajuli (pt)	991
	Harisinga	979
	Kalaigaon (pt)	965
	Khoirabari (pt)	981
	Mangaldai (pt)	947
	Mazbat	966
	Pathorighat (pt)	1012
	Udalguri	969
	Overall	972
BTAD		968
ASSAM		958
INDIA		943

Source: Census of India, Assam, Primary Census Abstract, 1971, 2001 and 2011.

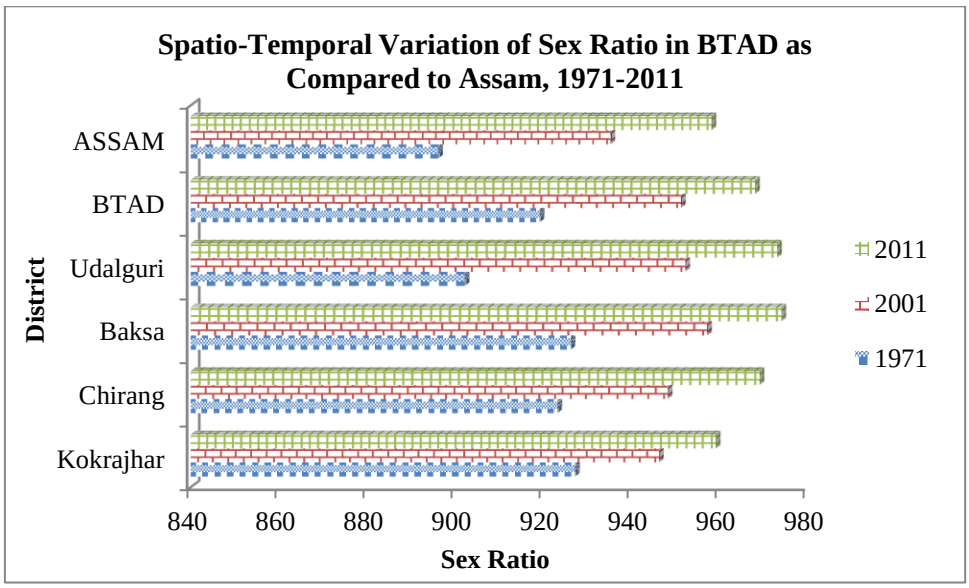


Fig. 5.4

5.4 Inter-Community Variation in Sex Ratio

The sex composition also varies at community level as influenced by prevailing social customs and traditions. In Northern India, it is a common practice to celebrate the birth of a boy child and bemoan that of a girl child. The Hijras (Transgenders) who make their living by extorting money on joyous occasions, such as the birth of a child, demand substantially large amount when the child is male. Gender bias is reflected in male-biased sex ratios resulting in problem of missing women and infanticide. In Dharmapuri district of Tamil Nadu infant girls are often fed uncooked rice, as a way of inducing rapid death. In Punjab (northern India), the Bedi Sikh castes have traditionally been known as kudi-maar, meaning

girl-killer (Bhaskar, 2011). In most of the parts of India girl child is considered to be burden of a family due to prevalence of dowry system in the society. This is no less true in the case of Assam and more particularly in the districts of BTAD. So far the sex ratio of the BTAD region is concerned, it is quite balanced among the scheduled tribes (999) (Table 5.7). However, lower sex ratio is found among the non-SC/ST population (954) of the region, as the non-SC/ST population of the BTAD region comprises of other socio-economically backward communities like tea tribes, Koch Rajbongshis and non-indigenous Muslim communities, etc (Fig. 5.5). It is quite interesting to note that the prevalence of greater proportion of female population as compared to male counterpart is found in the Udalguri (1002) and Chirang (1001) districts of BTAD region. In the case of SC population, the BTAD region has comparatively lower sex ratio (942) as compared to the corresponding state (948) and national (945) averages (Table 5.7 and Fig. 5.6).

Table 5.7: Spatial Variation of Sex Ratio among SC, ST and Non-SC/ST Population in BTAD, 2011

District	Sex Ratio		
	SC	ST	Non-SC/ST
Kokrajhar	922	996	943
Chirang	941	1001	952
Baksa	947	998	963
Udalguri	950	1002	959
BTAD	**942**	**999**	**954**
ASSAM	**948**	**985**	**954**
INDIA	**945**	**990**	**937**

Source: Census of India, Assam, Primary Census Abstract, 2011

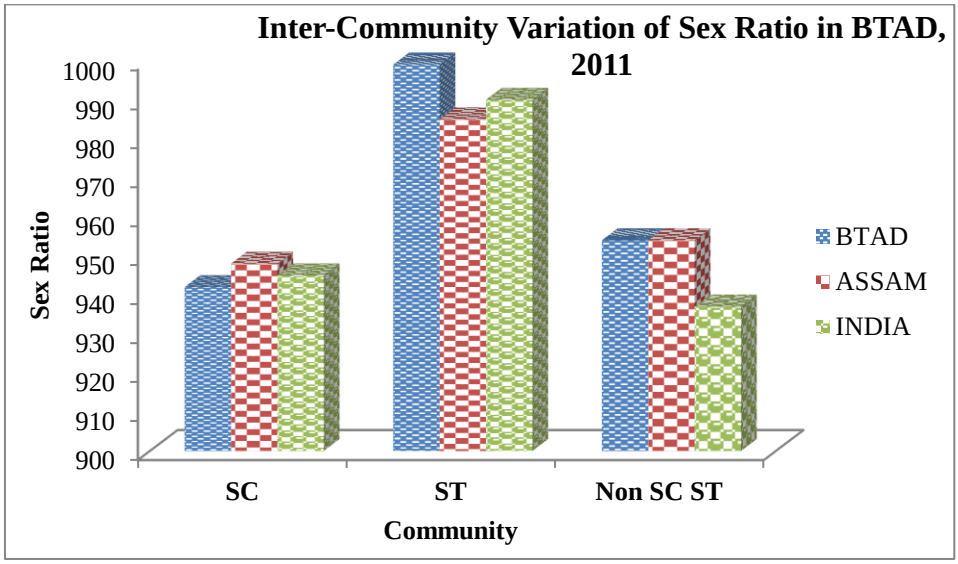


Fig. 5.5

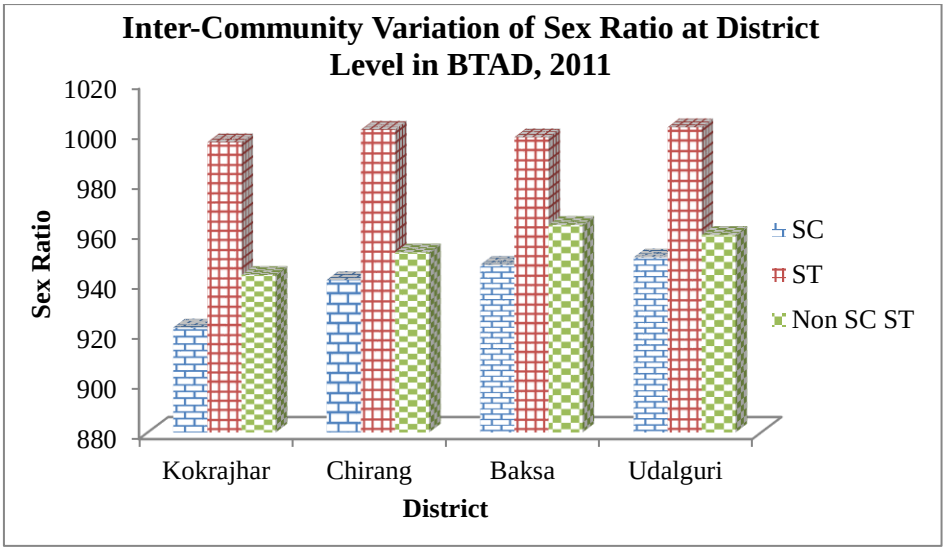


Fig. 5.6

So far the sex ratio among the different communities in the BTAD region is concerned, it is quite balanced among the Bodo community dominated areas (994), followed by mixed community dominated urban areas (989) of the region. The prevalence of such a balanced sex ratio among the Bodo community of the region is the result of absence of dowry system and prevalence of social customs and traditions with gender equality. In contrary to this, sex ratio is found to be quite low among the Koch-Rajbongshi community (871) and indigenous Muslim community (873) dominant areas of the region (Table 5.8 and Fig. 5.7).

Table 5.8: Inter-Community Variation of Sex Ratio in BTAD, 2013-2015

Population Group	Sex Ratio
Bodo	994
Indigenous Muslims	873
Non Indigenous Muslims	902
Koch-Rajbongshi	871
Tea Tribes	984
Bengali Hindu	963
Non Tribal Assamese	925
Nepali	920
Mixed Community	989

Source: Primary Survey, 2013- 2015.

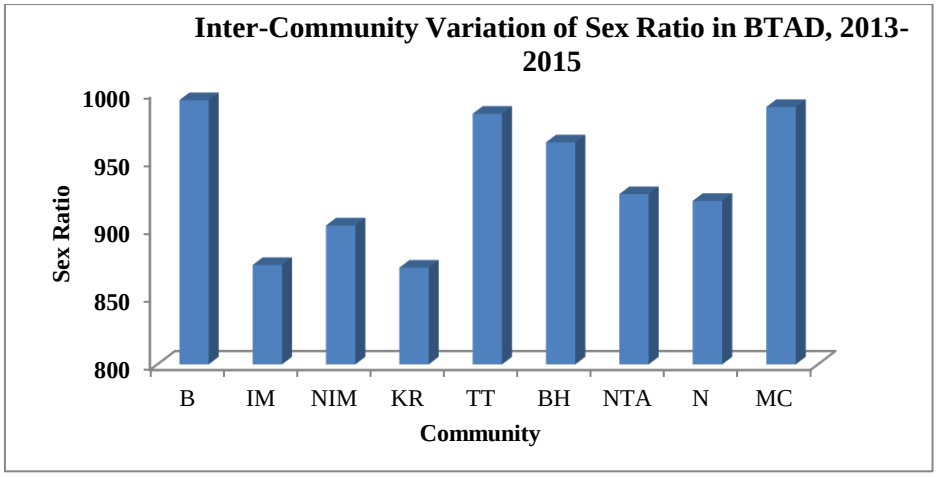


Fig. 5.7

5.5 Age Composition and Its Spatial Variation

The age composition of population indicates the prevailing demographic and socio-economic well-being of a population group of an area. It is known that a higher proportion of children (0-14) and old people (60+) are indicative of higher age dependency. As in India, the people bearing the age group between 0-14 is categorized as children and are classified as non-workers and considered the age of an individual's physical, mental and social development through the process of formal and informal education system. Similarly, the people bearing the age of 60 and above are also categorized as age dependent population, as it is the age of retirement in the country from various services and other associated income generated works. Apart from this, most of the people in this category also becomes physically, mentally unstable due to occurrence of number of old age diseases, etc. and have to depend on the working age group of the family. However, some of the study shows that greater the proportion of population in 0-14 age group, more will be the future youth power of a country. On contrary to it, greater proportion of population in the above 60+ age group indicates more proportion of population having experience and greater knowledge as required for the development of a nation. Conversely, the physical well-being of a region largely depends on the demographic structure of population composition and age dependency acts as a dominant determinant of physical well-being. Thus, higher the proportion of people in these categories resembles greater dependency in a country. So far 0-14 age group or child population is concerned, it is slightly lower in BTAD region (32.24 per cent) as compared to the state average (32.84 per cent), while significantly higher than the national average (30.76 per cent). In terms of old age dependency, the region has a lower proportion of people in the age group 60+ as compared to national figure due to prevailing lower life expectancy (Table 5.9). Thus, the BTAD region has slightly lower age dependent population (38.69 per cent) as

compared to state average (39.50 per cent) and national average (39.34 per cent). However, the BTAD region has an advantage of greater proportion of working age population (15-59 age) than the state and national average.

So far the district level variation in proportion of children population is concerned, it is found to be the highest in the Chirang district (34.25 per cent), followed by Kokrajhar district (33.94 per cent), while it is the lowest in Baksa district (30.38) of the region. On contrary to this, higher old age population and adult age (15-59 age group) population is found to be greater in proportion in Baksa district than the rest of the three districts of the region (Table 5.9).

Table 5.9: Spatial Variation of Age Composition in BTAD, 2011

District	Age Composition (As percentage of total population)		
	0-14	15-59	60+
1.Kokrajhar	33.94	59.93	6.12
2.Chirang	34.25	59.68	6.04
3.Baksa	30.38	62.56	6.99
4.Udalguri	31.41	62.05	6.42
BTAD	**32.24**	**61.23**	**6.45**
ASSAM	**32.84**	**60.43**	**6.66**
INDIA	**30.76**	**60.29**	**8.58**

Source: Census of India, C-13 Single Year Age Returns by Residence and Sex, 2011.

5.6 Inter-Community Variation in Age Composition

The age composition, which signifies the structure of population of a community, is considered an important indicator of demographic characteristics and socio-economic well-being of an area. So far the picture of age composition in the sample areas of BTAD region at community level is concerned, it is characterized by very high proportion of population in 0-14 age group among the indigenous Muslims (37.42 per cent), followed by non-indigenous Muslims (35.00 per cent) and tea tribes (31.74 per cent) due to prevalence of high birth rate among these communities (Fig. 5.8). However, it is quite low in the urban areas having mixed community population (19.03 per cent), followed by non-tribal Assamese (21.69 per cent) community in the region due to prevalence of more awareness among them.

Table 5.10: Inter-Community Variation of Age Composition in BTAD, 2013-2015

Population Group	Age Composition		
	0-14	15-59	60+
Bodo	24.86	68.35	5.92
Indigenous Muslims	37.42	56.44	6.13
Non-Indigenous Muslims	35.00	58.55	6.45
Koch-Rajbongshi	26.78	68.19	5.03
Tea Tribes	31.74	62.04	6.22
Bengali Hindu	24.11	68.80	6.91
Non-Tribal Assamese	21.69	70.51	7.97

Nepali	28.52	63.02	8.29
Mixed Community	19.03	70.74	10.22

Source: Primary Survey, 2013- 2015.

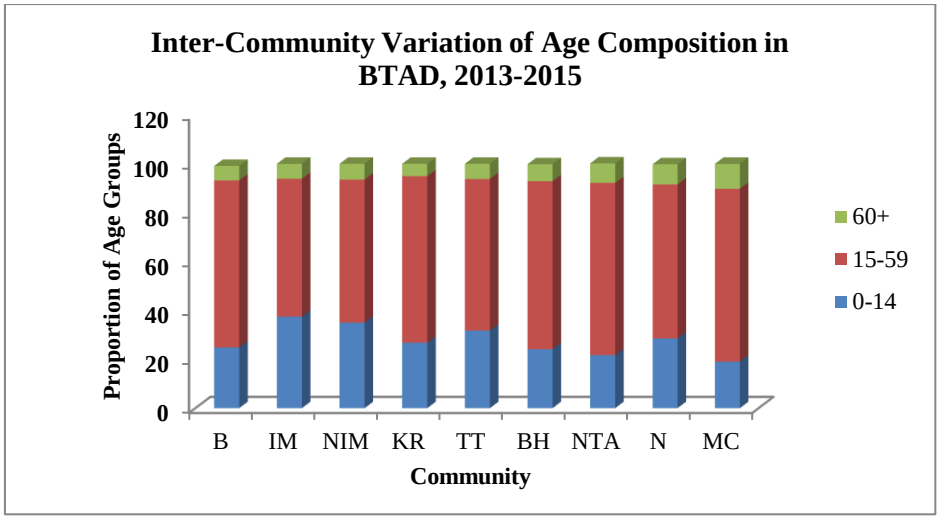


Fig. 5.8

Moreover, the proportion of population in 60 and above age group is considerably higher among the mixed community inbited urban areas (10.22 per cent) due to the prevalence of better health care accessibility in the urban areas (Table 5.10). Thus, a greater proportion of age dependency is found among indigenous Muslims (43.55 per cent), followed by non-Indigenous Muslims (41.45 per cent) and tea tribes (37.96 per cent). On the contrary, people in urban areas and non-tribal Assamese community have high proportion of population in age group 15-59 (Table 5.10 and Fig. 5.8).

5.7 Life Expectancy and Its Socio-Spatial Variation

Life expectancy, a statistical measure of the average time span of an individual expected to live or the average age at death, is one of the important indicators to understand the level of health status in a region. The prevalence of higher average age at death and low child mortality, higher will be the ageing of population and resultant high quality of healthcare delivery system. It is also used in public policy planning, especially as an indicator of future population ageing in developed nations. As per the WHO, 72 years was the average life expectancy at birth of the global population in 2016. In India, average age of death or life expectancy has been 68 years during 2016 and has significantly increased over the past century, reflecting considerable fall in mortality rates, initially from infectious diseases, maternal mortality, cardiovascular diseases, etc. due to advancement in health care service sector throughout the country. However, despite development in health care sector in most parts of the country, average age at death has not shown much decline as yet. The picture in

this respect in the state of Assam and particularly in the districts of BTAD has not shown much improvement. The average life expectancy or average age at death in the BTAD region is still as low as 56.84 year, which is significantly lesser than the national average (66.90 as per 2011 Census). Further, the sample villages have recorded average life expectancy of merely 55.93 year as against 64.86 year in the urban areas. However, among the BTAD districts, the average age of death is found to be the lowest in Baksa district (55.04 year) (Table 5.11).

Table 5.11: District Level Variation of Average Age at Death, 2013-2015

District	Average Age at Death
1.Kokrajhar	58.21
2.Chirang	58.13
3.Baksa	55.04
4.Udalguri	55.53
BTAD	**56.84**

Source: Primary Survey, 2013- 2015.

There exists considerable variation in age of death at community level in the study region. The age of death or life expectancy is found to be quite high in urban areas largely inhabited by people belonging to mixed communities (64.86 years). However, it is quite surprising to note that despite having low health care accessibility among the non-indigenous Muslims the average age at death is not so discouraging (60.77 years) as compared to many other dominant population groups in the region. The life expectancy is found to be the lowest among tea tribe community (47.44 year) (Table 5.12).

Table 5.12: Inter-Community Variation of Average Age at Death, 2013-2015

Population Group	Average age at Death
Bodo	58.98
Indigenous Muslims	57.42
Non Indigenous Muslims	60.77
Koch-Rajbongshi	56.62
Tea Tribes	47.44
Bengali Hindu	53.64
Non Tribal Assamese	58.94
Nepali	55.27
Mixed Community	64.86

Source: Primary Survey, 2013- 2015.

5.8 Female Age at Marriage and Its Socio-Spatial Variation

Female age at marriage has a direct impact upon the fertility rate and social well-being of human population. Early marriage is believed to be responsible for higher fertility and high rate of population growth. It is therefore considered as an important indicator of socio-economic wellbeing of a society. As the minimum legal age at marriage of females in India is still 18 year, the fertility is bound to remain high. The mean female age at marriage of the study area is found to be 20.10 year. Some of the earlier studies revealed that due to the prevalence of low sex ratio also the female age at marriage has still remained low. However, the study shows the slow increase of average age at marriage of females in BTAD region from 18.12 year among married females of age group 60+ to 20.34 year among the married females of age group below 40 year (Table 5.13).

Table 5.13: District Level Variation of Female Age at Marriage, 2013-2015

District	Female Average Age at Marriage		
	Below 40	**40-60**	**60 Above**
Kokrajhar	20.49	20.41	18.62
Chirang	19.91	19.93	18.75
Baksa	20.72	20.42	17.03
Udalguri	20.25	19.53	17.86
BTAD	**20.34**	**20.05**	**18.12**

Source: Primary Survey, 2013-2015.

The female age at marriage also varies at community level as in most of the patriarchal Indian society age of female marriage is influenced by prevailing social customs and traditions of the community concerned. It is no less true in the case of BTAD region inhabited by diverse communities. The community level study of the region still presents low female age at marriage. So far the female average age at marriage in the below 40 age-group of females is concerned, it is found to be slightly higher in mixed community urban areas (22.52), followed by non-tribal Assamese community (21.60) villages of the region. However, despite prevalence of legal female age at marriage of 18 year, the non-indigenous Muslim community still witnesses early marriage and thereby its mean female age at marriage has remained as low 17.21 year. The scenario in this respect is found to be quite discouraging among the females of 40-60 and 60+ age groups and lowest average female age at marriage has been found in non-indigenous Muslim (16.91) and indigenous Muslim (16.00) villages of the region (Table 5.14).Thus, it has direct impact on the prevailing fertility pattern and other demographic characteristics among all the communities of the region.

Table 5.14: Inter-Community Variation of Female Age at Marriage in BTAD, 2013-2015

Population Group	Female Average Age at Marriage		
	Below 40	40-60	60 Above
Bodo	21.00	20.76	18.72
Indigenous Muslims	19.45	18.78	16.00
Non Indigenous Muslims	17.21	16.91	16.79
Koch-Rajbongshi	19.77	19.12	17.68
Tea Tribes	19.65	19.53	19.20
Bengali Hindu	21.00	19.61	17.29
Non Tribal Assamese	21.60	21.50	17.45
Nepali	19.79	20.15	16.67
Mixed Community	22.52	21.41	19.53

Source: Primary Survey, 2013-2015.

5.9 Socio-Spatial Variation in Physical Well-Being

As the concept of well-being is multi-dimensional in nature, it encompasses various attributes satisfying human needs and wants to availability of various services. Besides this, the concept of physical well-being reflects the prevailing demographic and social structure of a community in an area. The demographic attributes like crude birth rate (CBR), child-woman ratio, crude death rate (CDR), etc. determine the physical well-being of a community. As many as ten demographic indicators like CBR, child-woman ratio, CDR, IMR, U5MR, sex ratio, age dependent population, working age group population, average age at death and female age at marriage have been considered to analyse the physical well-being of the BTAD region with the help PCA technique. So far the intercommunity level of physical well-being in the BTAD region is concerned, out of the 9 considered distinct communities of the region, 5 distinct communities record negative physical well-being. Apart from it there is a wide variation of physical well-being within the communities in the region. As the people residing in the urban areas have greater accessibility to various services along with the level of awareness leads to a better status of physical well-being among the mixed communities (5.78) of BTAD region (Fig. 5.9). The level of physical well-being is also comparatively better among non-tribal Assamese community (4.40), distantly followed by Bodo community (2.44) and Koch-Rajbongshi community (1.09) of the region. However, as per the considered indicators, the tea tribes community (-6.27) has witnessed lowest level of physical well-being due to the prevalence of considerably high death rate, high infant mortality rate, high under 5 age mortality rate, low life expectancy, etc. among them in the region (Table 5.15). The physical well-being is also discouraging among non-indigenous Muslims, indigenous Muslims, Bengali Hindus and Nepalis in the region (Fig. 5.10) .

Table 5.15: Inter-Community Variation of Physical Well-Being in BTAD, 2013-2015

Population Group	PCA Value
Bodo	2.44
Indigenous Muslims	-3.09
Non Indigenous Muslims	-3.42
Koch-Rajbongshi	1.09
Tea Tribes	-6.27
Bengali Hindu	-0.74
Non Tribal Assamese	4.40
Nepali	-0.16
Mixed Community	5.78

Source: Calculated from Primary Survey Data, 2013-2015.

In the case of district level study also there exists disparity in physical well-being. In fact, among the 4 districts of BTAD region, except Chirang district (5.56) all other districts witness negative level of physical well-being (Table 5.16). However, Kokrajhar district, despite being the core area of BTAD region and more accessible to various services, still records negative level of physical well-being due to occurrence of higher proportion of infant mortality rate (IMR), high under 5 mortality rate (U5MR) and lower sex ratio (Fig. 5.10).

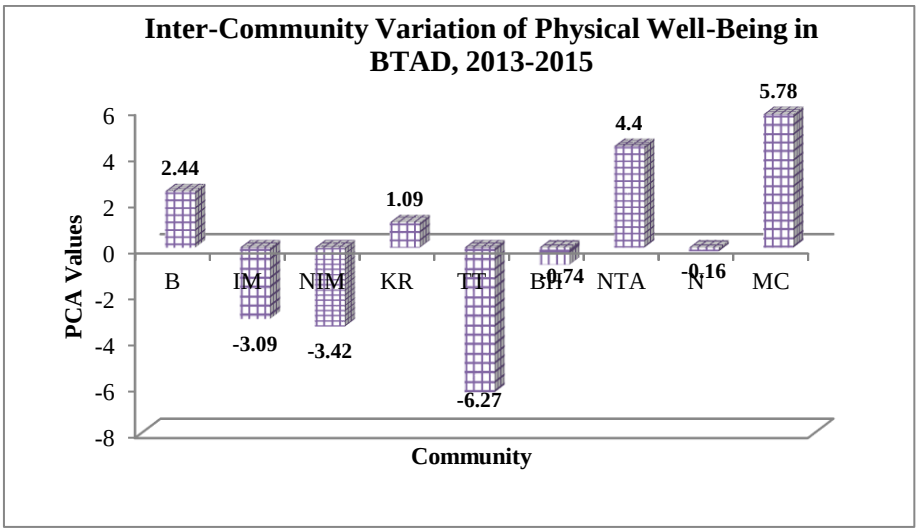


Fig. 5.9

Table 5.16: District Level Variation of Physical Well-Being in BTAD, 2013-2015

District	PCA Value
Kokrajhar	-0.16
Chirang	5.56
Baksa	-2.99
Udalguri	-2.52

Source: Calculated from Primary Survey Data, 2013-2015.

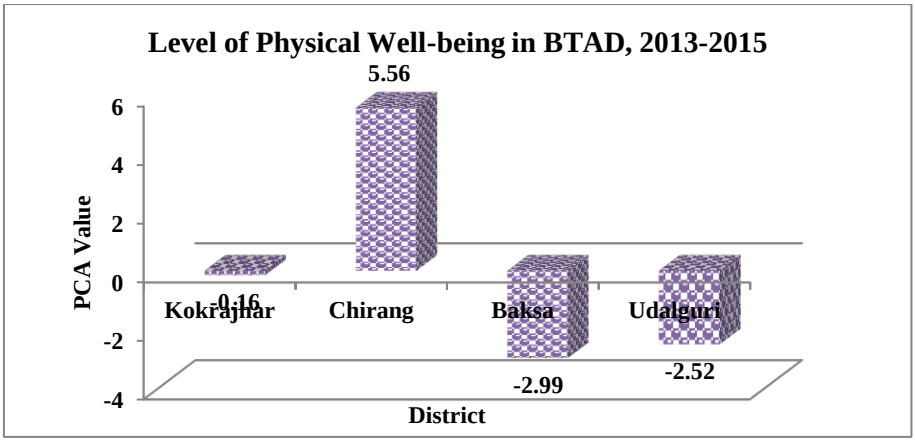


Fig. 5.10

Thus, the study of various demographic indicators of fertility like CBR, Child-woman ratio; mortality like CDR, IMR and U5MR; sex ratio, age composition, female age at marriage in respect of both socio-spatial pattern in BTAD region reveal a highly varied physical well-being and it has a great impact on the prevalence of overall socio-economicl well-being in the entire region.

CHAPTER 6

SOCIO-ECONOMIC WELL-BEING AND ITS ASSOCIATED CORRELATES

A condition in which the needs and wants of the people are satisfied determines the socio-economic well-being of an area. A healthy society is one in which people have sufficient income for their basic needs, and where poverty has been eradicated, where people are socially and economically mobile and respectful of the dignity of others and where they have access to good services in a stable, democratic and participatory environment (Kar, 1996). The social and economic setting in which man lives has own implication for well-being. All societies are organized hierarchically so that some people are better placed on the social ladder than the others. However, to develop a truly egalitarian society, it needs fundamental changes in the value system (Misra, 2007).

6.1 Concept of Socio-Economic Well-Being and Its Related Indicators

The concept of socio-economic well-being is related with diverse indicators of society. Tandon (2016) in her study relates the concept of well-being with two components, as first component is to identify people's own needs for their life to be good, another is developing people's sense of themselves, that is the attribute which they themselves value the most. The basis on which social hierarchy is built varies from country to country and place to place. It is difficult to pin point the factors that brought about the inequalities. However, a healthy society comprises of balance between the needs of people for life and value and happiness of needs. Thus, the dimensions of socio-economic well-being comprise proper education and social structure, satisfied occupation, income and wealth, access to civic amenities and sanitation condition, health awareness and quality of life, access to various services and govt. welfare, etc.

Education and Social Structure

The education that trains individual to acquire, evaluate and use information by shaping ones behaviour plays a vital role in prevailing socio-economic well-being of an area. Education is the base of all the development and advancement of civilization aim at evolution of a better

man and development of mind (Sharma, 2003). It leads to develop learned effectiveness that enables self direction towards habits, skills, resource and abilities to achieve a better life of an individual. In modern India, the level of educational advancement in the country is measured by prevailing literacy rate and educational attainment level as the advancement of literacy rate and educational attainment level not only signifies eradication of illiteracy, but mitigation towards the negligence and abolition of certain taboos and superstations from the society. So far the literacy rate and educational attainment level of BTAD region is concerned, it still witnesses low literacy rate and low proportion of graduate people as compared to the rest of the country as mentioned in the chapter 3 of the report. Apart from it, the level of poor educational advancement determines the prevailing social structure of the region by modifying certain social customs and traditions. The BTAD region still records high average family size (5.19), child population working as labourer (4.43 per cent) in different section of works, high gender inequality in terms of literacy and educational attainment level, work participation, decision making process, health care practices etc.

Occupation, Income and Wealth

The socio-economically advanced society is the one which largely depends on the satisfied income and economic independence. However, the income and economic independence relies on the occupational structure of people within the region. It determines purchasing power, standard of living, quality of life, family size, health condition and awareness towards it, material well-being, etc. The economic condition of an area can be understood by looking at the proportion of total population engaged in various economic activities as occupation, as the means of earning for living determines the income pattern and material wealth well-being of a society. So far the occupational structure of the BTAD region is concerned, greater proportion of its population is engaged in agriculture and other primary economic activities as daily wage labourer (57.07 per cent), etc. and hence leading to occurrence of poor income pattern throughout the region. Apart from it there is a great diversity prevails among the male and female counterparts in terms of work participation. So, it not only enhances the rate of dependency among females, but also leads to gender discrimination throughout the region. The rate of dependency is also found to be very high in the region, as most of the families have single earning member in the households. Thus, the pattern of occupational structure and related income to it leads to prevalence of poor housing pattern with lesser capacity of

rooms, land ownership and other household amenities influencing socio-economic well-being throughout the region.

Civic Amenities and Sanitation Condition

The provision of basic civic amenities and sanitation conditions are the core aspects of socio-economic well-being in an area. In India, inadequate and unequal distribution of civic amenities among the greater mass and prevailing sanitation condition becomes a matter of concern for the growth of healthy well-being of the nation. The lack of safe drinking water and food supply along with the poor maintenance of hygiene and sanitation condition are the major cause of occurrence of water borne and other diseases throughout the country. This is no less significant in the state of Assam more particularly in the districts of BTAD as the greater proportion of people still have shortage of purified drinking water, proper solid waste disposal method, lack of sewage disposal drainage, toilet facility, healthy food supply, etc.

Health Awareness and Quality of life

The information or awareness about matters of health is often more useful than the use of drugs in preventing illness (Ashtekar, 2001). The prevalence of poor health condition, diseases and illness results in mental agony and depressions within an individual. The growing knowledge or awareness about health and its care in an individual level leads to increasing public concern about it. The realization about health care services and its influence in social well-being results in the growth of such services in an area along with the development of quality of life. The health care awareness campaigning attempts to create public awareness regarding number of diseases, their occurrence and new health care interventions to promote healthy growth of society. Proper health care education is required to know the occurrence of deadly diseases and to make the people conscious about the likely impacts.

The importance of health care awareness is realized throughout the world and accordingly a number of global level health care awareness strategies is adopted for healthy progress of the society. The Government of India (GoI) has initiated a good number of schemes and projects in order to improve health conditions of its citizens. However, despite govt. initiative public awareness related to overall way of living, sanitation and good health condition and preventive measures to lead a healthy life among the large section of people in the society are still lacking in the BTAD region. Thus, the status of health, level of awareness towards health and maintaining the quality of life determines the socio-economic well-being of an area.

Welfare and Service

The access to various welfare services for every individual is one of the pre-requisite conditions for the overall development of socio-economic well-being of an area. The availability to various health care services, educational facilities, governmental welfare schemes, availability to sufficient road networks and transport facilities, etc. to all section of people are the foremost conditions to attain the well-being of a society. The access to health care services ought to possess four basic characteristics, such as availability, accessibility, affordability and quality with regard to both health care and underlying preconditions of health. Similarly, educational facilities also depend on availability of educational institutions, accessibility, affordability and quality of it with respect to proportion of population in a region. Apart from it the level of infrastructural development in respect of transport and communication provides accessibility to health care facilities and other associated services of socio-economic well-being in a region. The roadways and railways are the only means of transport system in the entire BTAD region. The region is circulated with National Highway extending for a length of only 45 km, 214 km State Highway and 5,216 km other P.W.D. roads. Thus, the development of various welfare services in the stable manner and with participatory environment becomes an important determinant of socio-economic well-being in the BTAD region.

6.2 Socio-Economic Well-Being and Its Socio-Spatial Patterns

The concept of socio-economic well-being is an idea rooted in the hierarchical arrangement of a society. It is associated with the idea of a society without having any shortage or scarcity of physical or material things, different services, etc. along with its value to the society. The socio-economic system is iniquitous with dominant group holding power and deprived group lacking of powers on one or other ground. The deprived group lacking legitimate opportunities fails to take care of their health and hence becomes victims of various diseases. On the other hand, the dominant group making wasteful uses of resources clings to luxuries and comforts to deny their basic needs and leads an unhealthy style of life to invite systemic disorders and diseases. However, the form of inequality differs from one society to another, but is found everywhere and all time. Thus, it is associated with the different dimensions of concept of socio-economic well-being depending upon the varying diversity of values to it.

Education and Social Structure

The study of educational development is considered one of the important parameters of assessing the overall change and development of human behaviour towards achieving a better

well-being of a society. However, the lack of consciousness towards the need of education, lack of availability of number of educational institutions in and around the villages, inequality in the distribution of educational institutions throughout the region, etc. leads to the wide socio-spatial variation of it. As already mentioned in chapter 3, the level of educational development throughout the country is measured by means of literacy rate and educational attainment, and in this respect socio-spatial diversity prevails in BTAD region resulting in unequal level of socio-economic development in the region. It not only varies at district level in the region, but also at community level and among all the dominant communities in the BTAD region. Tea tribe community and non-indigenous Muslim community record the lowest rate of literacy.

As education is a process of enhancing way of living by bringing about desirable changes in human behavior. Thus, it symbolizes the quality of human society and it is a vitally important measure for balanced social well-being of a region. Larson (1993) stated that social well-being is composed of two elements, viz. social adjustment and social support. Social adjustment is a combination of satisfaction with relationships, performance in social roles and adjustment to one's environment with knowledge gathered through the educational development. Social support is composed of the number of contacts in one's social network and satisfaction with those contacts. Thus, the social structure of the region is reflected through the prevailing family size and pattern in the region. In India, the joint and extended family system has been in existence since ancient times. However, with the passage of time, the joint family system has been disintegrated to the nuclear system. In the study areas, the occurrence of nuclear family types is dominant both at district level and community level (Table 6.1 and 6.2).

Table 6.1: District Level Variation of Family Size and Type in BTAD, 2013-2015

District	Family Size	Proportion of Total Sample Households (in %)		
		Nuclear	Joint	Extended
1.Kokrajhar	4.56	72.60	6.85	20.55
2.Chirang	5.43	68.95	5.24	25.81
3.Baksa	5.67	60.77	9.61	29.61
4.Udalguri	5.41	68.70	11.06	20.23
BTAD	5.19	68.49	8.39	23.12

Source: Primary Survey, 2013-2015.

Table 6.2: Inter-Community Variation of Child Family Size and Type in BTAD, 2013-2015

Population Group	Family Size	Percentage of Total Sample Households		
		Nuclear	Joint	Extended
Bodo	5.29	65.78	6.75	27.47
Indigenous Muslims	6.52	58.00	6.00	36.00
Non Indigenous Muslims	5.25	52.54	6.78	40.68
Koch-Rajbongshi	4.78	69.83	5.03	25.14
Tea Tribes	5.70	68.18	18.18	13.64
Bengali Hindu	5.16	77.39	7.83	14.78
Non-Tribal Assamese	5.22	65.49	15.04	19.47
Nepali	5.43	62.16	5.40	32.43
Mixed Community (Urban Areas)	4.40	70.00	11.25	18.75

Source: Primary Survey, 2013-2015.

The prevailing social structure of a region is also reflected through the freedom and participation of child in the society. Children are the most vital and intrinsic part of the society and also the country at large. The child with all its inherent potential interacts with the opportunities we offer and builds itself. A majority of psychological disruptions in adults can be traced back to impressions and experiences of childhood (Chandrasegaran, 1996). Children are the most vulnerable group and they need great social care on account of their vulnerability and dependence. They can be exploited, ill treated and directed into undesirable channels by unscrupulous elements in the community (NIPCCD, 1997). The engagement of children in different working sectors is a global phenomenon and serious emerging problem. As per International Labour Organisation (ILO) the term "child labour" is often defined as work that deprives children from their childhood, their potential and their dignity, and that is harmful to physical and mental development. The works which are mentally, physically, socially or morally dangerous and harmful to children and interferes with their schooling by depriving them of the opportunity to attend school, obliging them to leave school prematurely with excessively long and heavy work are classified as child labour. The higher proportion of child labour signifies a low economic and social status of a country. Worldwide millions of children are engaged in many hazardous activities which hinder their physical, mental and social development. A number of child labour activities often lead to the cause of various health issues. India, being one of the countries having higher proportion of children population, engages a large proportion of them in work (21.44 per cent) as child labour. The consideration of age for being child labour is, however, different in different nations including the nature of works. In India, children in age group of 5-14 year are gainfully engaged physically or mentally in any occupation either in agriculture, or in industry or in household works, is called child labour. The occurrence of higher rate of child labour in a country is due to poor economic condition of the families and thus sending their child to work

in different economic sectors to supplement family income. So far the child labour of BTAD region is concerned, considerably a high proportion of children is engaged in different work throughout the region as compared to the state and national figures (Table 6.3). The proportion of child labour is the highest in Chirang district (5.18 per cent) and lowest in Udalguri district (3.46 per cent). Moreover, it varies significantly at community level. Among the different communities, it is found to be the highest among tea tribe community (5.96 Per cent), followed by non-indigenous Muslims (4.17 Per cent) due to poor economic condition, and the lowest among the socio-economically better-ff non-tribal Assamese community (0.47 per cent) (Table 6.4). Thus, the prevalence of child labour hinders the healthy growth of children and makes the status of socio-economic well-being low in the region.

Table 6.3: District Level Variation of Child Population and Child Labour, 2011

Areas	Child Population (5-14 Age in Per cent)			Percentage of Child Labour out of Child Population		
	Total	Male	Female	Total	Male	Female
Kokrajhar	23.32	23.43	23.20	5.00	5.55	4.42
Chirang	23.87	23.99	23.74	5.18	5.57	4.77
Baksa	21.53	21.63	21.42	4.31	4.69	3.92
Udalguri	22.10	22.16	22.03	3.46	3.84	3.06
BTAD	22.54	22.64	22.44	4.43	4.87	3.98
ASSAM	22.55	22.56	22.53	4.05	4.81	3.25
INDIA	21.44	21.77	21.09	3.90	4.15	3.63

Source: Census of India, B-1 Series, 2011.

Table 6.4: Inter-Community Variation of Child Labour and their Occupational Composition in BTAD, 2013-2015

Population Group	Proportion of Child Labour (Out of the total workers)			Occupational Composition of Child Labour (in per cent)			
	Total	Boy	Girl	Agriculture	Industry	Trade and Commerce	Services
Bodo	1.41	0.78	4.35	36.36	0	0	63.64
Indigenous Muslims	1.96	1.07	11.11	50.00	0	50.00	0
Non Indigenous Muslims	4.17	2.92	14.28	50.00	37.50	12.50	0
Koch-Rajbongshi	1.00	0.37	6.90	33.33	0	0	66.67
Tea Tribes	5.96	7.02	4.81	38.46	30.77	7.69	23.08
Bengali Hindu	0.94	0.51	5.26	0	0	60.00	40.00
Non-Tribal Assamese	0.47	0.53	0	0	0	0	100
Nepali	2.63	1.74	11.11	20.00	0	20.00	60.00
Mixed Community (Urban Areas)	0.75	0.49	1.54	0	50.00	50.00	0

Source: Primary Survey, 2013 – 2015.

The prevailing gender inequality is also a matter of concern for improvement of socio-economic well-being in the region. The current gap between male and female population in terms of literacy rate and educational attainment level has also contributed to proliferate gender inequality in educational development as already referred in chapter 3. Moreover, the

occupational structure reveals prevailing gender inequality throughout the region as females are restricted to some sort of works in the society and are mostly preferred to domestic works like household cleaning, child nurturing, animal rearing, etc. In terms of decision making process, health care, etc. also women are kept aside and given least priority than the male members of the family. Thus, all these anomalies in social structure of the region have kept the level of socio-economic well-being low in the region.

Occupation, Income and Wealth

The term occupation is broadly associated with the specific manual or mental operations involved in the execution of occupational work, the income or wealth yield from work which serves to provide a livelihood and social prestige attached to a person or group by virtue of occupation. The well-being of a society is centered around seven basic needs, first three i.e. food, clothing and shelter as survival needs; education and health as enabling needs; and security and self realization as ennobling needs. However, all these needs exclusively depend on occupation, income and wealth. So far the occupational structure of the BTAD region is concerned, a large proportion of its people is engaged in primary economic activities like cultivation, daily wage labour in industries and household sectors, etc. as described in chapter 4. Apart from this, in majority of the families single member of the household is earner and the other members are dependent on the single earner. Hence, the BTAD region constitutes of 59.16 per cent of population as dependent on the earning group (Table 6.5). Among the districts in the BTAD, Kokrajhar district witnesses the highest dependency ratio. Besides, the dependency is found to be quite high among the females due to the prevalence of gender disparity in work participation and economic activities.

Table 6.5: District Level Variation of Dependency Ratio in BTAD, 2011

District	Dependency Ratio (in per cent)		
	Total	Male	Female
Kokrajhar	61.55	47.82	75.86
Chirang	59.79	47.41	72.55
Baksa	57.19	44.61	70.10
Udalguri	58.51	45.29	72.12
BTAD	**59.16**	**46.13**	**72.62**

Source: Primary Census Abstract, Census of India, Assam, 2011.

The dependency ratio also varies at community level due to the prevailing diversity in social norms. It is found to be the highest among non-indigenous Muslims (69.52 per cent), followed by indigenous Muslims (69.33 per cent) and Nepalese (68.49 per cent). It is mainly due to the prevalence of higher dependency among the females following societal restrictions against female participation in many works (Table 6.6). Thus, the inter-community variation

in dependency ratio regulates the income pattern and material well-being of population in the region.

Table 6.6: Variation of Dependency Ratio at Community Level in BTAD, 2013-2015

Population Group	Dependency Ratio (in per cent)		
	Total	Male	Female
Bodo	64.48	41.69	87.40
Indigenous Muslims	69.33	47.70	94.08
Non-Indigenous Muslims	69.52	47.55	93.88
Koch-Rajbongshi	64.91	40.70	92.71
Tea Tribes	65.23	63.93	66.56
Bengali Hindu	64.08	37.09	93.13
Non-Tribal Assamese	64.30	38.76	91.90
Nepali	68.49	45.22	93.77
Mixed Community (Urban Areas)	61.93	42.66	81.43

Source: Primary Survey, 2013 – 2015.

Civic Amenities and Sanitation Condition

The civic amenities constitute important parameter to understand socio-economic well-being of population in an area. However, there exists socio-spatial variation in the pattern of distribution of basic civic amenities in most parts of the world and it is no less true in the case of BTAD region of Assam.

Drinking Water

The prevalence of civic amenities and consciousness towards well-being is reflected through quality of safe drinking water at household level. The use of unpurified form of drinking water is one of the major causes of occurrence of high rate of water borne diseases in the region. The study reveals that huge proportion of sample households still uses unpurified drinking water (63.89 per cent) as a result of poor accessibility to civic amenities, lack of knowledge regarding use of purified drinking water along with the other economic constraints (Table 6.7). So far the district level variation of drinking water availability is concerned, Baksa district records the highest rate of use of unpurified drinking water as compared to other part of the BTAD. However, higher the level of health awareness, lower is the use of unpurified drinking water in Kokrajhar district.

Sanitation and Toilet Condition

The causes behind occurrence of various diseases are largely associated with living condition and maintenance of surrounding environment including sanitation. The people having knowledge and awareness about health problems due to sanitation and surrounding environment maintain clean and healthy sanitation condition in their households. The pattern of use of toilet plays a significant role in maintaining healthy life of people, as it determines

occurrence and spread of a number of diseases. So far the use of toilet is concerned, it is revealed that a huge proportion (32.46 per cent) of sample households in the BTAD still practice open form of defecation and 39.97 per cent use kutcha toilet (Table 6.7). However, there exists wide variation in the use of toilet in the region. In fact, open defecation is more common in rural areas (51.69 per cent) than the urban areas (13.12 per cent). Similarly, the kutcha toilet is more used in the rural areas (33.44 per cent) than the urban areas (27.50 per cent). On the other hand, higher proportion of pucca and sanitary type of toilet is found in the urban households (59.37 per cent) than the rural ones (14.86 per cent) due to comparatively higher degree of health awareness and prevailing better economic condition. There is, however, district level variation in the types of toilet in use, and a comparatively higher proportion of households having sanitary toilets is recorded in Kokrajhar district (38.13 per cent), while kutcha toilets are larger in proportion in Udalguri district (50.12 per cent) and open defecation is more in Baksa district (41.54 per cent) (Table 6.7).

Table 6.7: Proportion of Use of Toilet in BTAD, 2013-2015

District	Unpurified Drinking Water (As percentage of households)	Use of Toilet (As percentage of households)		
		Sanitary	Kutcha	Open
1.Kokrajhar	53.88	38.13	32.42	29.45
2. Chirang	67.74	28.63	39.52	31.85
3. Baksa	75.00	21.92	36.54	41.54
4. Udalguri	70.59	19.53	50.12	30.35
BTAD	**63.89**	**27.57**	**39.97**	**32.46**

Source: Primary Survey, 2013-2015.

Solid Waste Disposal and Sewage Drainage

Apart from using toilets, proper management of waste disposal and sewage is also another vital aspect of maintaining sanitation and healthy way of living reflecting level of civic amenities and sanitation condition. The dumping of wastes is a major concern for health, as it acts as the breeding ground for the vectors of different diseases. The dumping of wastes in nearby areas of households leads to larger possibilities of disease spread. The study reveals a clear picture of rural-urban variation in waste disposal pattern and rural people have larger proportion of waste disposal within their premises (88.60 per cent) due to greater availability of space nearby household area. However, in urban areas outside the premise waste disposal (53.75 per cent) is commonly prevailing due to greater accessibility of public waste disposal in the region. So far district level variation of within premise waste disposal is concerned, it is much higher in sample households of Udalguri district (86.12 per cent), while outside the premise disposal is greater in Kokrajhar district (28.77 per cent) (Table 6.8).

Similarly, maintaining clear sewage water disposal is also another important aspect reflecting awareness towards healthy life of people. It has been observed that about 83.59 per cent of sample households in the region possess stagnated sewage water nearby. The rate of household having stagnated sewage water nearby is found to be higher in the rural areas (85.80 per cent) than the urban (66.87 per cent) counterparts, as lesser importance is given for construction of drainage system in the rural areas of the region. About 90.74 per cent households of BTAD region still do not have any drainage system for the sewage disposal. Thus, the urban area signifies better awareness and consciousness towards maintaining healthy surrounding environment. The higher rate of households having stagnated sewage water nearby is found in Chirang district (97.58 per cent). Apart from maintaining these sanitation conditions, about 48.43 per cent of sample households do not have any bathroom facilities, and thereby practicing open bathing and therefore, highest rate of open bathing households is found in Baksa district (Table 6.8).

Table 6.8: Waste Disposal, Sewage Water, Drainage Facility, Water Storage in BTAD, 2013-2015

District	Waste Disposal (As Percentage of Households)		Sewage (As Percentage of Households)		(As Percentage of Households)		
	Within Premise	Outside Premise	Clearly Drain off	Stagnated Nearby	Open Bathing	No Drainage Facility	Water storage in Uncovered Vessel
Kokrajhar	71.23	28.77	16.67	83.33	39.04	81.05	74.20
Chirang	84.27	15.73	2.42	97.58	49.19	100	69.76
Baksa	78.85	21.15	21.54	78.46	51.15	98.08	74.23
Udalguri	86.12	13.88	21.18	78.82	50.12	90.82	73.65
BTAD	**76.73**	**23.27**	**16.41**	**83.59**	**48.43**	**90.74**	**73.23**

Source: Primary Survey, 2013-2015.

Health, Awareness and Quality of life

The conceptual linkage between mental and social health was clearly established by the World Health Organization in 1947, with its definition of health as "a state of complete physical, mental and social well being". As the WHO definition of health also speaks of health as “state of complete physical, mental and social well-being and not merely the absence of disease and infirmity”, a state of being healthy or free from illness reflects well-being for the people. Well-being therefore assumes a magnified quality when all the components are put together. The term well-being thus becomes a state of being happy, prosperous and healthy, not just physically but also mentally, psychologically, socio-economically as well as culturally.

Health awareness is one of the major indicators which reveal a person’s knowledge about various health issues. Although the occurrence of some of the diseases is related to genetic disorder, most of the prevailing diseases are the result of acquired life style. However,

the way of living and habits are largely governed by the knowledge regarding the health care and awareness level associated with sanitation, nutritional, knowledge about different diseases, prevention and availability of health care services. The level of awareness towards health, its care, knowledge about disease causing agents, its control, etc. largely varies as per the geographical conditions and cultural practices of the people living in the area. Thus, the level of awareness regulates the quality of life, incidence of disease pattern, etc. in a region.

Nutrition and Food Habit

The health condition of a person is greatly determined by quality of food intake and nutritional values of foodstuffs. Hence, nutrition is most essential requirement of human beings. Nutrition can be defined as a dynamic process in which food that consumed is utilized for nourishing the body (Tiwari, 2007). The intake of nutritional variation also leads to variation of health condition from person to person. As nutritional deficiencies at different age groups resulted in occurrence of a number of deficiency diseases, need of maintaining proper nutritional level is of utmost importance in every step of life. Nutritional needs particularly calcium, iodine and iron at young age people are more because of additional requirements for growth spurt and increase in physical activity. Inadequate iron storage during younger age and before conception leads to iron deficiency anemia during pregnancy which aggravates the risk of death due to anemia during pregnancy (Kishor and Kishor's, 2011). The maintaining quality nutritional diet, adopting different food habits, etc. are largely influenced by awareness level. A man needs around 2500 kcal a day to maintain his normal weight, while for a woman it is around 2000 kcal a day and can vary depending on age, metabolism and levels of physical activity among other things. The need for food supplements to meet the required nutrition becomes utmost important as diversity in food consumption is lacking throughout the region and solely dependent on locally available foods. As to maintain a healthy nutritional level, knowledge about the balanced diet is important, however, very nominal rates (14.44 per cent) of sample household populations of the region have the knowledge about the norms to maintain balanced diet (Table 6.9).

Similarly, the proportion of use of food supplements (19.98 per cent) for the healthy growth is very less in proportion in the entire region. In respect of food supplements use also the sample households of urban (51.87 per cent) areas have higher proportion than the rural (15.77 per cent) counterparts. Along with the use of healthy diet and essential food supplements, knowledge about the ill effects of consumption of some food should be required to regularize balanced health condition. As the consumption of tobacco, betel-nut, etc. is

tested as unhealthy and acts as components of hindrance in regulation of balanced health. However, the study reveals a very high proportion of sample households both in towns and villages uses tobacco, betel-nut, etc. (91.32 per cent) as a part of food habit due to associated age long cultural practice (Table 6.9). Apart from it, high consumption of alcohol (48.65 per cent) is also prevalent in the region. Thus, the use and consumption of unhealthy food, tobacco, betel-nut and alcohols in the sample areas reflects the poor level of awareness about the ill effects of these foods and is prevalent either due to age long cultural belief among the different community people or due to poor knowledge regarding health care.

Among the districts of BTAD the use of food supplement is found to be the highest in Kokrajhar district (28.31 per cent) and lowest in Baksa district (11.54 per cent). However, contrasting result is found in respect of tobacco, betel-nut consumption, etc. in the region (Table 6.9). In terms of consumption of liquor, a higher proportion of sample households in Udalguri district is found to consume liquor.

The level of awareness towards health care is also assessed in respect of the use of vitamins, iron tablets and folic acids especially by the female members of the family, as prevalence of anemia is very high among females. With the advancement of modern medical system the use of vitamins, iron and folic acid tablets has been made essential during the time of pregnancy. Out of all sample households, about 44.42 per cent females of sample households use vitamins, iron and folic acid tablets. However, there is significant rural-urban differential in the use of vitamins, iron and folic acid tablets and females of urban (73.75 per cent) areas use comparatively higher proportion of it than the rural (39.88 per cent) females. The use of vitamins, iron and folic acid tablets by females is found to be quite high in Kokrajhar district (50.23 per cent).

Table 6.9: Knowledge about Nutrition and Food Habit in BTAD, 2013-2015

District	**Percentage of Households**					
	Cooked food stored in Uncovered	Knowledge about the Balance Diet	Use of Food Supplements	Consumption of Tobacco, Betal nut etc.	Consumption of Liquor	Use of Vitamin, Iron and Folic Acid by Females
1.Kokrajhar	38.81	25.57	28.31	86.76	46.57	50.23
2.Chirang	49.19	12.90	20.16	87.10	41.53	40.32
3.Baksa	43.08	11.15	11.54	99.23	49.61	36.92
4.Udalguri	28.24	7.29	16.47	96.94	54.35	43.53
BTAD	**33.26**	**14.44**	**19.98**	**91.32**	**48.65**	**44.42**

Source: Primary Survey, 2013-2015.

Disease Incidence Pattern

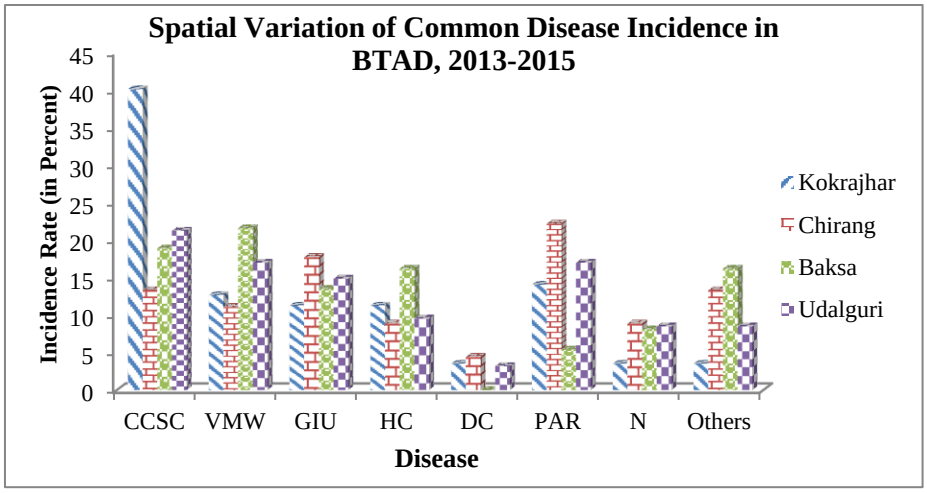
The status of good health and quality of life means almost absence of diseases and is assessed with morbidity and mortality pattern, prevalence of common diseases, etc. The term disease incidence means occurrence of diseases and exposure to risk of life. In most of the time disease incidence refers to number of occurrence of new disease cases in a specific period of time, but is not separable from occurrence of mortality associated with prevalence of diseases. As the epidemiology of incidence of diseases is not only associated with genetic or biological factors, but is largely determined by acquired socio-economic characteristics of population. Thus, the study of variation in disease incidence pattern in socio-spatial context becomes utmost important for further preventive measures. So far disease incidence rate is concerned, it differs from one place to another depending upon the variation of physical, social and economic factors associated with it. Throughout the region the high disease incidence is related to cold, cough, sores and chest problem (28.30 per cent). The diseases or suffering from different pains like arthritis, rheumatism, etc. (15.09 per cent) dominate the region. Apart from this, high rate of occurrence of viral fever, mosquito-borne diseases and water-borne disease (14.78 per cent) also hinders the healthy status of life throughout the region (Table 6.10). As regards the district level variation in proportion of disease incidence associated with cold, cough, sores and chest problem is concerned, it is found to be the highest in Kokrajhar district (40.14 per cent) and lowest in Chirang district (13.33 per cent). The incidence rate of viral fever, mosquito-borne disease and water-borne disease is higher in Baksa district (21.62 per cent) and lower in Chirang district (11 11 per cent). However, the prevalence of gastro-intestinal and urological diseases (17.78 per cent), cancer and diabetes diseases (4.44 per cent), different types of pains like arthritis, rheumatism, etc (22.22 per cent) and neurological problems (8.89 per cent) are somewhat common in Chirang district as compared to other districts of BTAD. On the other hand, incidence of diseases like viral fever, mosquito-borne disease and water-borne disease (21.62 per cent), hypertension and cardiac problem (16.22 per cent) and other unidentifiable diseases (16.21 per cent) are more prevalent in Baksa district (Table 6.10 and Fig. 6.1).

Table 6.10: Common Disease Incidence Rate in BTAD, 2013-2015

District	No. of Persons Suffering	Diseases (in per cent)							
		Cold, Cough, Sores and Chest Problem	Viral fever and Mosquito and Water borne	Gastro-intestinal and Urological	Hypertension and Cardiac Problem	Diabetes and Cancer	Pains (Arthritis, Rheumatism etc.)	Neurological	Others
1.Kokrajhar	142	40.14	12.68	11.27	11.27	3.52	14.08	3.52	3.52

2.Chirang	45	13.33	11.11	17.78	8.89	4.44	22.22	8.89	13.33
3.Baksa	37	18.92	21.62	13.51	16.22	0	5.40	8.12	16.21
4.Udalguri	94	21.28	17.02	14.89	9.57	3.19	17.02	8.51	8.51
BTAD	**318**	**28.30**	**14.78**	**13.52**	**11.01**	**3.14**	**15.09**	**6.29**	**7.86**

Source: Primary Survey, 2013- 2015.



* CCSC- Cold, Cough, Sores and Chest Problem, VMW- Viral fever and Mosquito and Water borne diseases, GIU- Gastro-intestinal and Urological, HC- Hypertension and Cardiac Problem, DC- Diabetes and Cardiac, PAR-Pain, Arthritis, Rheumatism etc, N- Neurological

Fig. 6.1

The incidence rate of different diseases also varies among different population groups depending upon the variable nature of social factors. It is found that incidence of common diseases like cold, cough, sores and chest problem is quite high among the indigenous Muslim villages (51.35 per cent), followed by non-indigenous Muslim villages (44.90 per cent), while lower incidence of these diseases is found among the Bengali Hindu villages (10 per cent) and urban areas (15.38 per cent). However, greater incidence of viral fever, mosquito and water borne diseases is prevalent among tea-tribe community village (25.92 per cent) due to lesser awareness about occurrence of these diseases, while it is comparatively lower in the Koch-Rajbongshi community villages (10 per cent). Considerably high incidence of occurrence of gastrointestinal and urological diseases has become one of the major concerns among the Bengali-Hindu community villages (32.50 per cent), and closely followed by the urban areas (20.51 per cent). On the other hand, occurrence of hypertension and cardiac problems is found to be more common among the Nepali community villages (24 per cent), while it is quite low among the tea-tribe community villages (3.70 per cent).

The process of socio-economic advancement leads to overall change of cultural habits of the society resulting in development of new life style and associated diseases related to it. The rising incidence of diseases like diabetes and cancer is also associated with changing cultural process of population groups. The community level study of incidence of diseases

like diabetes and cancer reveals that these are more pronounced in the urban areas (7.69 per cent) having mixed population composition. It is followed by non-tribal Assamese community village (6.67 per cent), while no records of incidence of diabetes and cancer is found in the indigenous Muslim communities, non-indigenous Muslim communities and tea-tribe community villages (Table 6.11). The diseases related to different types of pain are more prevalent in the Koch-Rajbongshi community villages (30 per cent), while it is quite low in Bengali Hindu (7.50 per cent) community villages. On the contrary, incidence of neurological problems is quite common in Bengali Hindu community villages (12.50 per cent). But, the unspecified rate of disease incidence is found to be more in the Bodo tribal community villages (11.69 per cent) of the region.

Table 6.11: Common Disease Incidence Rate in BTAD, 2013-2015

Population Group	CCSC Problem	VMW Diseases	GIU Diseases	HC Problems	Diabetes and Cancer	Pains (Arthritis, Rheumatism etc.)	Neurological	Others
Bodo	28.57	12.99	12.99	9.09	2.60	11.69	10.39	11.69
Indigenous Muslims	51.35	10.81	2.70	8.12	0	24.32	0	2.70
Non Indigenous Muslims	44.90	14.28	4.08	8.16	0	20.42	0	8.16
Koch-Rajbongshi	32.50	10.00	10.00	7.50	2.50	30.00	0	7.50
Tea Tribes	48.15	25.92	7.41	3.70	0	11.11	0	3.70
Bengali Hindu	10.00	15.00	32.50	15.00	5.00	7.50	12.50	2.50
Non-Tribal Assamese	20.00	20.00	0	13.33	6.67	26.67	6.67	6.67
Nepali	28.00	20.00	12.00	24.00	4.00	8.00	4.00	0
Mixed Community	15.38	12.82	20.51	15.38	7.69	12.82	7.69	7.69

*CCSC- Cold, Cough, Sores and Chest Problem, VMW- Viral fever and Mosquito and Water borne diseases, GIU- Gastro-intestinal and Urological, HC- Hypertension and Cardiac Problem
Source: Primary Survey, 2013- 2015.

Apart from incidences of common diseases, the morbidity pattern also explains overall variation of disease occurrence and its resultant consequences. As regards morbidity pattern in the sample areas of the region is concerned, greater incidence of death is still associated with cold, cough, sores, viral fever, mosquito and water borne diseases (29.20 per cent). Every year a huge section of people is largely affected by viral fever, mosquito and water borne diseases and even deaths occur due to preventive nature of these diseases. The favourable physical environmental condition along with prevalence of low level of health awareness leads to higher rate of death associated with viral, mosquito and water borne diseases. The morbidity study that reflects death related to chest, blood pressure and cardiac, respiratory problems (24.52 per cent) are also significantly high in the region. The prevalence of low level of knowledge about the intake of balanced and healthy diet along with associated

food habits leads to occurrence of high incidence of these diseases in the region. It is worth mentioning that deaths related to cancer and life style diseases (13.50 per cent) are also found to be somewhat high in the region and acts as an alarm for the need of health awareness towards it. The deaths related to child birth (1.38 per cent) have also been witnessed in the region despite the adoption of strategies for child and maternal health care.

The morbidity pattern associated with different diseases varies at district level in the region. In all the districts of BTAD excluding Udalguri district, cold, cough, sores, viral fever, mosquito and water borne diseases are the prime cause of death. However, greater incidence of death associated with it is found in Chirang district (34.61 per cent), followed by Kokrajhar district (30.88 per cent), while the death due to gastrointestinal problems is greater in Kokrajhar district (19.85 per cent), followed by Baksa district (15.69 per cent). The diseases related to chest, blood pressure, cardiac and respiratory problems constitute the main cause for mortality in Udalguri district (31.45 per cent), followed by Baksa district (23.53 per cent). Similarly, the deaths related to urological problems (11.76 per cent) and child birth (5.88 per cent) are quite high in Baksa district, while occurrence of cancer, diabetes and other lifestyle diseases leading to greater morbidity is prevalent in Chirang district (19.23 per cent) and Udalguri district (14.52 per cent) (Table 6.12 and Fig 6.2). Moreover, highest incidence of death associated with natural death and accident is found in Kokrajhar district (14.70 per cent), followed by Udalguri district (12.10 per cent).

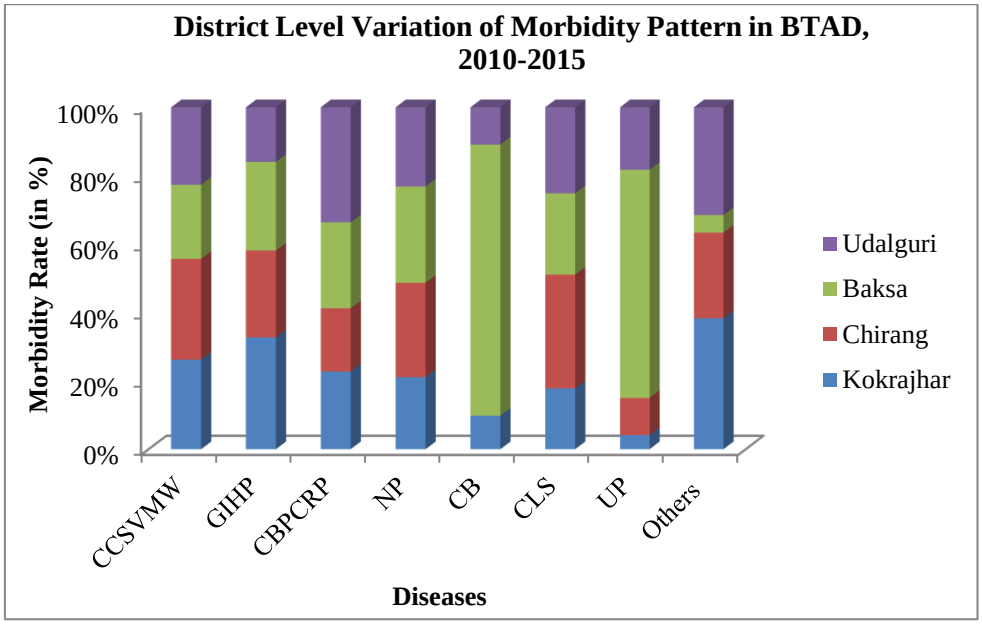
Table 6.12: Morbidity Pattern in BTAD, 2010-2015

District	No. of Deaths (Last 5 Years)	Cause of Death (in Per cent)							
		CCSVMW	GIHP	CBPCRP	NP	CB	CLS	UP	Others
1.Kokrajhar	136	30.88	19.85	21.32	1.47	0.73	10.29	0.73	14.70
2.Chirang	52	34.61	15.38	17.31	1.92	0	19.23	1.92	9.61
3.Baksa	51	25.49	15.69	23.53	1.96	5.88	13.72	11.76	1.96
4.Udalguri	124	26.61	9.68	31.45	1.61	0.81	14.52	3.22	12.10
BTAD	**363**	**29.20**	**15.15**	**24.52**	**1.65**	**1.38**	**13.50**	**3.30**	**11.29**

*CCSVMW-Cold, Cough, Sores, Viral fever and Mosquito and Water borne diseases, GIHP- Gastro-intestinal, Hepatitis Problems, CBPCRP-Chest, Blood Pressure and Cardiac, Respiratory Problems, NP-Neurological Problems, CB-Child Birth, CLS-Cancer and Life style Diseases, UP-Urological Problems, Others (Natural Death, Accidental Death etc.).
Source: Primary Survey, 2013- 2015.

Childhood mortality is one of the important indicators of a country's general medical and public health conditions, and consequently, it shows the country's level of socio-economic development. Its decline is therefore not only desirable but also indicative of an improvement in general living standards. Although most of the study related to child mortality refers to death of children below the age of 5 year, the present study considers child

mortality below the age of 14 year. It is found that a high incidence of child death is still associated with common cold, fever and cough (37.62 per cent), followed by water-borne disease (28.62 percent), and viral and mosquito-borne disease (26.37 per cent). But it is worth mentioning that child mortality largely due to common cold, fever and cough is very high in Bengtol II village (100 per cent), followed by Shupariguri II village (80 per cent) of Chirang district, while it is lowest in Barangabari village. However, water-borne disease is the main cause of child mortality in Kokrajhar MB, Bar Jalah and Nepaligaon sample areas (60 per cent), while viral and mosquito-borne disease became the cause for death in Kokhagaon village (52.38 per cent) (Table 7.6). The district level variation of child mortality in age group 0-14 associated with common cold, fever, cough, etc has been progressively on rise in Chirang district (62.74 per cent), distantly followed by Kokrajhar district (34.90 per cent). A large proportion of death related to water-borne disease is found in Baksa district (31.25 per cent) and Kokrajhar district (31.13 per cent). Similarly, the child death related to mosquito-borne diseases has also been higher in both Baksa (32.81 per cent) and Udalguri (28.89 per cent) districts. The child mortality without any specific disease has comparatively been higher in proportion in Baksa and Udalguri districts.



*CCSVMW-Cold, Cough, Sores, Viral fever and Mosquito and Water borne diseases, GIHP- Gastro-intestinal, Hepatitis Problems, CBPCRP-Chest, Blood Pressure and Cardiac, Respiratory Problems, NP-Neurological Problems, CB-Child Birth, CLS-Cancer and Life style Diseases, UP-Urological Problems.

Fig. 6.2

The morbidity pattern related to different diseases has been found out at community level to understand prevailing social variation. Considerably high incidence of death

associated with cold, cough, sores, viral fever and mosquito, water-borne diseases, etc. are very high among the Koch-Rajbongshi (42.22 per cent) and tea tribe (41.82 per cent) community sample villages. Despite improvement in health care sector common occurrence of viral diseases, etc. may also become the cause of death in the interior villages of the region due to low spread and slow progress of health care awareness within these community villages. As expected, lower incidence of morbidity associated with cold, cough, sores, viral fever, mosquito and water borne diseases is found to prevail in the urban centres (5.40 per cent) due to greater accessibility to various health care infrastructures and better state of awareness or concern about associated health.

Table 6.13: Inter-Community Variation in Morbidity Pattern in BTAD, 2010-2015

Population Group	No. of Deaths	Diseases (in per cent)							
		Cold, Cough, Sores, Viral fever and Mosquito and Water borne diseases,	Gastro-intestinal Problems	Chest, Blood Pressure and Cardiac, Respiratory Problems and lifestyle diseases	Neurological Problems	Child Birth	Cancer and Diabetes Diseases	Urological Problems	Others (Natural Death, Accidental Death etc.)
Bodo	91	23.08	18.68	34.06	0	4.39	9.89	1.10	8.79
Indigenous Muslims	12	16.67	8.33	25.00	0	0	16.67	25.00	8.33
Non Indigenous Muslims	39	38.46	10.26	17.95	0	0	20.51	2.56	10.26
Koch-Rajbongshi	45	42.22	15.55	13.33	2.22	0	11.11	0	15.55
Tea Tribes	55	41.82	23.64	14.54	0	1.82	7.27	1.82	9.09
Bengali Hindu	36	25.00	8.33	36.11	0	0	16.67	0	13.89
Non-Tribal Assamese	18	22.22	0	33.33	5.55	0	16.67	5.55	16.67
Nepali	30	36.67	20.00	20.00	6.67	0	6.67	6.67	3.33
Mixed Community	37	5.40	10.82	24.32	5.40	0	27.03	8.11	18.92

Source: Primary Survey, 2013- 2015.

The morbidity related to gastro-intestinal problems has been found to be higher among tea tribe community (23.64 per cent), followed by Nepali (20.0 per cent) and Bodo community (18.68 per cent) villages. The occurrence of chest, blood pressure and cardiac, respiratory problems and lifestyle diseases has become the cause for mortality among Bengali Hindu (36.11 per cent) and Bodo community (34.06 per cent) sample villages. The incidence of morbidity due to neurological problem is comparatively higher among Nepali community villages. On the other hand, despite large scale modernization in maternal health care and institutional delivery system, greater proportion of Bodo community (4.39 per cent) people especially in sample villages still witness death in child birth process. The morbidity mainly due to cancer, diabetes etc. (27.03 per cent) and other unspecified and accidental deaths (18.92 per cent) are found to be quite high in urban centres, while mortality due to

occurrence of urological problems is quite high among indigenous Muslim community villages (25 per cent) (Table 6.13).

Welfare and Service

The state of socio-economic well-being is related to the availability and accessibility to various welfare and services to common people. Thus, the availability of welfare services like health care services, educational institutions, road and transport etc. are prime aspect to look up in attaining health growth of socio-economic well-being in a region.

Health Care services

Health as the wealth for all is one of the basic rights of every individual in the country. As per the Constitution of India, providing good health to the people becomes one of the primary duties of all state governments. Thus, it makes every state responsible for improvement of public health sector for the development of the society. The purpose of health care services is to improve the health status of the population and deliver the health care services (Dutta and Bawari, 2007). So far the health care services in BTAD is concerned, it has 4 Civil Hospitals (CH) in district headquarters of the districts, 1 Sub Divisional Civil Hospital (SDCH) in the Gossaigaon subdivision of Kokrajhar district and 14 Community Health Centres (CHC) in different parts of the region. Moreover, there are 132 Primary Health Centres (PHC) and 549 Sub-Centres (SC) including Secondary Health Care (*SHC*) and State Dispensaries (SD) in the BTAD to provide basic health needs to the people covering most parts of the region.

The number of hospitals and other health centres in an area, and facilities available there are largely indicative of the prevailing physical well-being of population in the area. So far availability of hospitals and other health centres of BTAD is concerned, it has in total 698 hospitals and health centres distributed both in the rural and urban areas under public sector and 8 under private sector with variation of services provided as against state total 5790 public hospitals and health centres. The entire region of BTAD has only 4 CH confined to only the district headquarters, 1 number of SDCH, 14 numbers of CHC, 130 numbers of PHC and 549 numbers of SC. As per the number of availability within the Kokrajhar district itself, there are as many as 211 health care units, of which 161 are sub centres acting as the medium to connect with the modern health care delivery system. However, mere availability of health centre does not mean its accessibility or service, as the lower order health centres like sub centres only act as helper for farther reference and to avail the improved health care services

one has to visit the higher order health centre like CHC, Civil Hospital, etc. The availability of modern scientific way of treatment is confined to mostly the CH, SDCH, CHC and partially in PHCs. Hence, the functionality of all the categories of health centres and hospitals varies with their available facilities. Thus, in order to find out the physical accessibility of the health centres, each and every category of health centres are given weightage according to their services provided to the people. As per the study it reveals that Kokrajhar district witnesses the highest weighted score, followed by Baksa district due to the presence of more number of higher ordered (RNB sub divisional civil hospital and CHCs) health care units, while lower weighted score in Udalguri and Chirang districts (Table 6.14). But, only the availability of health care facilities will not serve the purpose for improvement of physical well-being of people, unless the facilities are properly delivered to the needy people in the area concerned.

Table 6.14: Availability of Hospitals and Health Centers and the Overall Weighted Score in BTAD, 2014-2015

District	No. of Hospitals and Health Centers				Overall Weighted Score of Hospital and Health Centre Facility
	CH/ SDCH	CHC	PHC	SC	
Kokrajhar	2	4	44	161	4.69
Chirang	1	3	23	85	2.65
Baksa	1	4	39	157	3.81
Udalguri	1	3	24	146	3.08
BTAD	**5**	**14**	**130**	**549**	**14.23**

Weightage for different categories of Hospitals and Health Centres: CH/SDCH=139.6, CHC=49.86, PHC=5.37, SC=1.27.

Source: Calculated based on data from Assam Rural Health Survey Factsheet, National Health Mission, 2014-2015.

6.3 Education and Socio-Economic Well-Being

Education and occupation combined with income reveals a person's socio-economic status, which acts as one of the strongest determinants of well-being. The level of educational attainment also influences the occupational pattern of population along with the overall development of the society. A number of researches suggest that people who complete higher levels of education have greater skill to survive, problem solving behaviour and less dependability.

Educational Attainment and Health Status

Education is a continuous process of advancement of knowledge, skills and attitudes that empowers an adult person to meet and improve upon his or her requirements. As education being one of the positive indicators for measuring human development and its association with maintaining good health have great significance to understand overall prevailing health

status (Groot and Brink, 2006). As discussed in previous chapters educational attainment acts as an important determinant of health status and it modifies health care and treatment seeking behaviour of individuals. Attainment of higher education gradually transforms the society with its new thoughts and ideas and brings about a change in health status. It is the fact that when higher educational attainment increases, it positively influences in lowering down of CBR, CDR, IMR, U5MR, etc. The increasing consciousness towards health care practices due to acquired knowledge through educational attainment leads to increase the life expectancy (Asghar *et al*., 2009). However, so far the progress of educational attainment in the region is very slow and proportion of literates with graduation and above educational level is found to be very low as mentioned in chapter 3. Thus, to understand the influence of educational attainment level on the overall health status, a correlation analysis is carried out between different health indicators and HSLC and above level of educational attainment. The prevalence of high rate of child birth is closely associated with educational level and there is a strong negative relationship between CBR and educational attainment level of HSLC and above (r= - 0.72) and is significant at 0.05 probability level. Thus, higher the level of educational attainment, lower will be the CBR in the region. Similarly, the incidence of high occurrence of death rate is also related to low educational progress in a region. However, the influence of education on CDR has weaker negative (-0.31) relation in the region due to other associated health and economic indicators and is only significant at 50 per cent probability level.

So far the incidence of child mortality in terms of IMR and U5MR is influenced by educational progress and greater level of educational attainment leads to lowering down of child mortality rate in the region. The relationship study reflects a strong negative relationship between HSLC and above educational attainment level and IMR (r = -0.95) and U5MR (r = -0.75). The IMR and high educational level of HSLC and above is significant at 0.01 probability level, while U5MR and educational level of HSLC and above is significant at 0.02 probability level. Thus, increasing rate of higher educational attainment level leads to decline of below 1 year age of child mortality and below 5 year of age child death. In contrary to these, the average age at death or life expectancy at birth tend to be increased with increasing level of educational attainment, as there exists significant positive correlation between educational attainment level of HSLC and above and average age at death (r = +0.65). However, it is significant at only 10 per cent of probability level. Apart from this, the overall level of health status also varies with proportion of HSLC and above (r = +0.91).

Thus, increasing level of educational attainment results in the increase of consciousness towards health and rise in the standard of living, and it further results in the increase of life expectancy in the region. Hence, it partially fulfills the considered objective in examining the impact of education on the demographic character and socio-economic well-being in the study area. It also partially answers the first research question put forward in the study that education influences the demographic character and socio-economic well-being in the study area.

Educational Attainment and Occupational Composition

Education as the key provider of knowledge not only enhances a person's information base but also leads to the development of his or her skills. The higher education is always considered as the facilitator of the economic advancement. The higher the educational level, better is the economic condition as it opens up new arena of occupational scope among the people. However, there exists both way causal relationship between the educational attainment and occupational composition, as the better occupation provides possibility to fulfill all needs along with eradicating poverty and enhance the scope to facilitate better education for the children. It also influences the occupational structure, way of living and various demographic attributes and in bringing about a balanced socio-economic development of an area. A number of studies in this respect suggest that higher levels of education open up employment opportunities with better level of income. Education is the basic ingredient of all forms of development and advancement of civilization (Sharma, 2003).

The study of community level variation of occupational structure in BTAD reveals that the people with higher educational attainment of graduation and above have higher proportion of workers in the tertiary sector including the trade and commerce and service sector. It also reflects that at the lower level of educational attainment the proportion of workers is more than the higher level of educational attainment, as a large section of people is engaged in the agricultural sector or as daily wage labourer with low level of skill. Thus, it has been found that in the graduation and above category there exists only 3.57 per cent of workforce as compared to below HSLC level with 16.33 per cent workforce.

There exists highly positive relationship between the level of educational attainment and proportion of tertiary workers. The analysis of data both at village and urban centre level presents a similar picture in the BTAD region. The people having higher educational attainment get better occupational scope as they enhance themselves with greater working

skill than the rest. The relationship study of percentage of literates with educational attainment of graduation and above with proportion of workers in tertiary sector reflects a very high positive correlation (r=+0.73) and it is found to be significant at 0.01 significance level. Hence, the percentage of tertiary workers increases with the increasing percentage of literates with educational level graduation and above (Table 6.15).

Table 6.15: Proportion of Literates with Educational Level Graduation and Above and Tertiary Workers in BTAD, 2013-2015

District	Dominant Population Groups.	Urban Centres/ Villages	Graduation and Above (in per cent)	Tertiary Workers (in per cent)	Correlation Coefficient
Kokrajhar	Mixed Community	Kokrajhar (MB)	29.69	96.19	+ 0.73 Significant at 0.01 probability level
	Bodo	Rangalikhata II	31.09	65.08	
		Dawaguri I	5.81	46.46	
	Tea Tribes	Dolabari Bagicha	0.00	11.31	
	Koch-Rajbongshi	Balagaon I	2.61	22.89	
		Guwabari	3.12	32.94	
	Bengali Hindu	Titaguri II	0.00	75.79	
	Non Indigenous Muslims	Gokulkhata II	4.82	27.72	
Chirang	Bodo	Tukrajhar II	26.94	73.50	
		Bengtol II	5.98	61.06	
	Koch-Rajbongshi	Durgapur	1.10	35.00	
		Shupariguri No.1	3.08	43.86	
	Non Indigenous Muslims	Serfunguri	0.59	8.79	
Baksa	Bodo	Shouraguri	1.01	21.84	
		Barangabari	0	39.74	
	Non-Tribal Assamese	Reclamation Block A	7.91	65.22	
	Nepali	Dhanshripur	0.48	16.33	
	Indigenous Muslim	Digholdonga	0	29.41	
Udalguri	Mixed Community	Udalguri (TC)	18.31	79.14	
	Bodo	Songlabari	4.61	26.55	
		Mantikiri	0	24.53	
	Tea Tribes	Khokhagaon	1.59	17.65	
	Non-Tribal Assamese	Bar Jalah	5.13	60.50	
	Nepali	Nepaligaon	0.00	19.35	
	Bengali Hindu	Pachim Nalbari	5.34	50.85	

Source: Primary Survey, 2013 – 2015.

The urban areas considered for the study have higher proportion of population with educational level of graduation and above and hence it has also higher proportion of tertiary workers mainly engaged in diverse services, trade and commerce and other associated works. However, the level of educational attainment and exposure to better working environment in the urban areas has also been influenced by its accessibility and availability of infrastructural facilities. It is further observed that the moderately interior areas and the areas far away from the urban areas have considerably low educational attainment and lesser opportunity to work in tertiary sector. Thus, higher educational attainment level opens up new avenues to entrepreneurship development leading to

upliftment of economic condition and rise in accessibility to health care services in the region.

Educational Attainment and Demographic Factors

Impact of Literacy Rate on Female Work Participation Rate

Literacy, which is also considered as one of the determining elements of occupational structure, has a close relationship with the female work participation rate of an area. It also helps to modify the traditional social belief system that females should work only within the house. Thus, it enhances opportunity among females to work along with the males. The correlation analysis in this respect reveals that there exists a strong positive relationship between literacy rate and female work participation (r= +0.59) in BTAD (Table 6.16). Thus, it means that the improvement in literacy rate has opened up a new horizon for the females by increasing their work participation rate.

Table 6.16: Literacy rate and female work participation rate in BTAD, 2011

Districts	Literacy Rate (in Per cent)	Female work participation (in Per cent)
1. Kokrajhar	65.22	24.14
2. Chirang	63.55	27.45
3. Baksa	69.25	29.90
4. Udalguri	65.41	27.88
BTAD	66.25	27.38
ASSAM	72.19	22.46

Source: Calculated from Census of India, PCA series 1, 2011.

Impact of Female Literacy on Child-Woman Ratio

Child-woman ratio is greatly dependent upon the traditional beliefs and socio-cultural practices and the prevailing socio-economic condition of a society. It is the education which uplifts the socio-economic condition of an individual and the society as a whole and has significant impact upon the quality of life and the demographic character. As the educational level and age at marriage are positively related, it influences the child-bearing propensity of women. There is an inverse relationship between the female literacy rate and the number of children born to them. A correlation analysis between female literacy rate and child-woman ratio (Table 6.17) shows a highly negative association (r= -0.88). It means higher the female literacy rate lower is the child-woman ratio in the sample areas.

Table 6.17: Female Literacy Rate and Child-Woman Ratio in BTAD, 2013-2015

Population Group	Female Literacy (in Percent)	Child -Woman Ratio	Correlation Coefficient
Bodo	76.31	3.55	-0.88
Indigenous Muslims	61.74	5.25	
Non-Indigenous Muslims	50.36	5.21	
Koch-Rajbongshi	70.47	4.17	
Tea Tribes	47.21	5.60	
Bengali Hindu	62.12	4.03	
Non-Tribal Assamese	82.42	3.40	
Nepali	63.78	3.77	
Mixed Community (Urban Areas)	89.23	3.27	

Source: Primary Survey, 2013-2015

Impact of Educational Attainment on Female Age at Marriage and Fertility Rate in the Sample Areas

Education is a continuous process of enhancement of knowledge, skills and attitudes that empowers a mature adult to meet and improve upon his or her requirements. With the attainment of higher education gradually transforms the society with its new thoughts and ideas and brings about a change in different demographic attributes. It is the fact that when tendency of attaining higher education among the female increases, it positively influences the age at marriage. Similarly, attainment of higher education helps in lowering down the fertility rate. However, it differs from one social group to another. So far the sample areas of BTAD are concerned, there exists a significant positive relationship between the educational attainment of graduation and above with female age at marriage (r=+0.62) (Table 6.18). It means higher the proportion of graduates and above in an area, higher will be the female age at marriage.

Table 6.18: Educational Attainment and Female age at Marriage at Community Level in BTAD, 2013-2015

Population Groups	General Graduates and above	Female age at marriage
Bodo	8.33	20.72
Indigenous Muslims	0.00	19.17
Non-Indigenous Muslims	2.68	17.10
Koch-Rajbongshi	2.37	19.41
Tea Tribes	0.95	19.57
Bengali Hindu	1.26	20.04
Non-Tribal Assamese	5.23	21.29
Nepali	0.27	19.53
Mixed Community (Urban Areas)	21.09	21.65

Source: Primary Survey, 2013-2015.

6.4 Occupation and Socio-Economic Well-Being

Some of the empirical study suggests that an increase in relative income leads to a gain in positional identity and therefore it raises the level of subjective well-being. This approach extends the understanding about the connection between positional concern and subjective well-being and explains the importance of social comparison in shaping individuals' preferences and tastes. People are concerned about their relative income as it represents positional identity of social status, which is dependent upon ideals and norms derived from the interactions between an individual and others within a society (Chang, 2013).

Occupation, Economic Condition and Health Status

The level of health status is greatly influenced by the prevailing occupational composition and associated economic condition of people. As the sound economic condition leads to control on purchasing power and treatment seeking behaviour of people, it influences directly and indirectly in the maintenance of healthy state of living. However, the economic condition is dictated by occupational structure of people. As stated in chapter 4, about 57.07 per cent of workforce in the sample areas is still solely engaged as cultivators and daily wage labourer or dependent on primary sector. It is found that about 53.15 percent of workers with very low to low economic condition witness a low standard of living and health status. Thus, a correlation analysis is carried out between secondary and tertiary occupational workers and various indicators of health to understand the control of occupational structure on the status of health. The Pearson's method of correlation analysis between CBR and secondary and tertiary workers reveals a strong negative relationship (-0.79), which is significant at 0.01 significance level. It shows that with the increase in the proportion of secondary and tertiary workers in the BTAD, there has been decrease in CBR in the region. Similarly, there is a strong negative relationship between IMR and secondary and tertiary workers (-0.85) and U5MR and secondary and tertiary workers (-0.55). However, the rate of infant mortality with secondary and tertiary worker is significant at 0.01 significance level, while it is insignificant in the case of U5MR. Thus, increasing workforce in secondary and tertiary sector has resulted in the decline of incidence of child mortality both in terms of IMR and U5MR. However, the overall level of health status is positively correlated with the proportion of secondary and tertiary workforce (+0.82) and significant at 0.01 significance level. Hence, the increasing proportion of secondary and tertiary worker leads to upliftment in the overall level of health status in the region.

The prevalence of very low economic condition also hinders maintenance of overall health status. There exists strong positive relationship with backwardness of economic

condition and incidence of CBR (0.73), CDR (0.55), IMR (0.79), U5MR (0.53) and disability rate (0.21). However, strong negative relationship prevails between health status and low level of economic condition (-0.77), as with the increase in proportion of workers with low economic condition results in the decrease of overall level of health status of a region. In contrary to these, the rise in economic condition leads to increase in the level of health status, which has been reflected through strong positive relationship (0.89) between proportion of people having high economic condition and high health status. Similarly, the average age at death also increases with increasing level of economic condition and are positively correlated (0.52). However, all the other health indicators like CBR (-0.80), CDR (-0.47), IMR (-0.86), U5MR (-0.65) and disability rate (-0.38) tend to decline with improvement in economic condition.

Occupational Composition and Economic Condition

The term occupation refers to the work in which a person is engaged for livelihood. Occupational composition also determines the social stratification or classification of society. The study of occupational composition is of paramount importance as it provides the structure of a society and ones social status in the society as per their works. The occupational composition is the division of working force as per their economic activities. It provides the ratio between the working population and the dependent population. The pattern of occupational composition largely determines the economic condition of a country. The larger the proportion of working population in the tertiary sector, better is the economic condition or higher the per capita income in the country. In fact, there is a close relationship between the development of an economy and the occupational structure. Economic progress is generally associated with certain distinct, necessary and predictable changes in occupational structure (Clark, 1940). Thus, the change of occupational structure may be an indication of economic growth. In other words, the growth and prosperity of a region are largely dependent on the size of working population.

In India about 54.60 per cent of working population is associated with agricultural sector as cultivators or agricultural labourers and have low economic condition which ultimately determines overall health and social well-being of a country. Like the different parts of the country, the working population of the study region is also associated with three types of occupational sectors, such as primary sector, secondary sector and tertiary sector. In the primary sector, most of the population is engaged as cultivators, agricultural daily wage

labourers, plantation workers etc., in the secondary sector as industrial workers mainly in pottery, tea, rubber and small scale household industries and in the tertiary sector as small and large scale business-man associated with different trade and commerce sector and service sector. There is a wide variation of occupational composition throughout the region and diversity prevails at community level.

Table 6.19: Community Level Variation of Occupational Pattern and Economic Condition in BTAD, 2013-2015

Population Group	Occupational Composition	Number of Workers	Percentage distribution of workers				
			Level of Economic Condition				
			Very Low	Low	Medium	High	Very High
Bodo	Agriculture	303	36.96	27.39	24.42	9.90	1.32
	Wage Labourers	135	78.52	20.00	1.48	0	0
	Trade and Commerce	106	11.32	30.19	28.30	22.64	7.55
	Services	235	5.11	14.47	32.76	29.36	18.30
Indigenous Muslims	Agriculture	43	39.53	30.23	16.28	11.63	2.32
	Wage Labourers	37	51.35	43.24	5.40	0	0
	Trade and Commerce	19	0	31.58	36.84	26.31	5.26
	Services	11	9.09	18.18	45.45	18.18	9.09
Non Indigenous Muslims	Agriculture	96	37.5	33.33	21.87	7.29	0
	Wage Labourers	59	67.80	28.81	3.39	0	0
	Trade and Commerce	22	18.18	13.64	45.45	18.18	4.54
	Services	14	7.14	14.28	42.86	28.57	7.14
Koch-Rajbongshi	Agriculture	127	36.22	26.77	27.56	6.30	3.15
	Wage Labourers	78	43.59	37.18	16.67	2.56	0
	Trade and Commerce	41	21.95	19.51	34.15	17.07	7.32
	Services	59	8.47	13.56	44.07	23.73	10.17
Tea Tribes	Agriculture	51	45.10	35.29	17.65	1.96	0
	Wage Labourers	197	47.21	40.10	12.69	0	0
	Trade and Commerce	6	0	0	66.67	33.33	0
	Services	34	29.41	23.53	32.35	11.76	2.94
Bengali Hindu	Agriculture	8	12.50	50.00	37.50	0	0
	Wage Labourers	75	46.67	34.67	17.33	1.33	0
	Trade and Commerce	87	8.04	12.64	50.57	18.39	10.34
	Services	45	4.44	13.33	48.89	22.22	11.11
Non-Tribal Assamese	Agriculture	50	14.00	22.00	34.00	26.00	4.00
	Wage Labourers	27	22.22	48.15	29.63	0	0
	Trade and Commerce	77	5.19	7.79	50.65	22.08	14.28
	Services	55	1.82	3.64	58.18	25.45	10.91
Nepali	Agriculture	99	39.39	29.29	28.28	3.03	0
	Wage Labourers	47	55.32	38.30	6.38	0	0
	Trade and Commerce	23	8.69	30.43	52.17	8.69	0
	Services	21	9.52	4.76	52.38	28.57	4.76
Urban Centres	Agriculture	11	36.36	27.27	36.36	0	0
	Wage Labourers	29	37.93	37.93	24.14	0	0
	Trade and Commerce	102	2.94	5.88	51.96	23.53	15.69
	Services	128	6.25	12.50	38.28	28.91	14.06

Source: Primary Survey, 2013 – 2015.

So far the community level study is concerned, among all the communities agriculture is the prime source of livelihood except that of the Bengali dominated villages and non-tribal

Assamese community villages where small and large scale business becomes the prime occupation. Another significant aspect of all the communities is that the proportion of workers engaged in agriculture sector has a very low to low economic condition due to less commercialization of agricultural sector. The study also reveals that the proportion of workers those engaged as daily wage labourers in the industrial sector have worst economic condition with larger section of them lie within the very low to low economic category (Table 6.19). However, the economic condition of the workers those related to trade and commerce and service in comparison to other occupational sectors is found to be better. On the other hand, a large section of workers in urban areas is found to be associated with the trade and commerce and service sector. Thus, it also partially fulfills the considered fourth objective of the study with respect to the impact of occupation on the demographic character and socio-economic well-being in the study area. It also partially answers the first research question that occupation influences the demographic character and socio-economic well-being in the study area.

6.5 Strategies for Sustainable Socio-Economic Development: Socio-Spatial Perspective

The sustainable socio-economic development is the core aspect to be considered in any developmental planning strategies of an area. So far the BTAD region having endowed with ethnically diverse population and varying social taboos, strategies need to be evolved for sustainable socio-economic development among every section of population, more particularly socio-economically backward communities. Some of the strategies are listed below and need to be adopted for overall socio-economic development in the region.

- By providing skill-based education among the local people, more particularly to the youths, for resolving the economic constraints and unemployment problem. For e.g. there is a huge demand of art and craft materials produced from locally available bamboo and it can generate employment potential in the region.
- Facilitating proportionate distribution of different services including health care, etc. to enhance the accessibility among the economically disadvantaged people.
- Through awareness on maintenance of better sanitation and providing knowledge on healthy diet, occurrence of different diseases, etc.
- Community level participation and awareness programme should be held regularly on various social issues to maintain social harmony in the region.

CHAPTER 7
SUMMARY AND CONCLUSION

The present research work basically deals with a detailed study of prevailing demographic character and socio-economic well-being in Bodoland Territorial Areas District (BTAD) of Assam and the influence of education and occupation on them in both social and spatial terms. Here the analysis mainly focuses on behavioural aspects of people depending on their socio-cultural traits, educational progress and prevailing economic conditions in determining the demographic character and socio-economic well-being in the region. The summary of whole study undertaken in preceding chapters along with findings derived from it and the suggestions for improvement of the situation are presented as below.

7.1 Summary

The Bodoland Territorial Areas District (BTAD) being one of the backward regions of Assam along with many other backward regions of the country, in terms of modern educational pursuits in the midst of poor economic condition, which hinders the growth of healthy socio-economic well-being in the region. The prevailing diversity in population structure along with lack of social awareness in the region towards the growth of healthy well-being leads to the prevalence of diversified socio-economic character of different population groups in the region. Apart from it, the unequal and imbalanced distribution of various services throughout the region also leads to prevailing poor demographic attributes and socio-economic well-being.

Chapter 1, being the introductory one consisting of statement of the problem, critical review of relevant literature, significance of the study, objectives, research questions, database and methodology builds the basic foundation of the research and procedure or approach adopted to carry out the whole research work. While stating the problem, the role of human population in structuring the socio-economic character is explained with discouraging demographic characteristics throughout the nation more particularly in the study area and educational advancement and occupational structure. The significance of the study of demographic character and socio-economic well-being and its associated correlates is also highlighted in this chapter.

The BTAD region, being one of the socio-economically backward and ethno-linguistically diverse regions, reflects diverse nature of demographic attributes and level of well-being. The significance of the study also lies in the fact that it tries to find out the under-lying disparities of different demographic traits in relation to educational attainment and occupational structure among the different population groups of the BTAD.

The entire work has been undertaken based on six objectives to analyse the pattern of educational attainment including the gender disparity in the study area in both spatial and social contexts with a view to understand the prevailing economic condition through occupational pattern of the people in the study area. The study also intends to assess the spatio-temporal patterns of demographic character in the study area on the basis of fertility, mortality, sex ratio, age composition, life expectancy, age at female marriage, etc in both spatial and social contexts along with the disparity in the levels of socio-economic well-being in both spatial and social terms. Moreover, study also includes the impact of education and occupation on the demographic character and socio-economic well-being in the study area and to evolve possible measures for a balanced and sustainable socio-economic development in the study area both spatially and socially.

The methodology including database involved in the study is explained in this chapter. The secondary data necessary for the study have been mainly obtained from Census of India publications for 1971-2011, Directorate of Economics and Statistics, Govt. of Assam and Directorate of Health and Family Welfare, Govt. of Assam. The primary data have been obtained from purposively selected 23 villages and 2 towns with the help of stratified random sampling technique. The sample areas are selected on the basis of dominant population groups with minimum of 30 sample households and maximum of 66 households constituting proportion of sample households from 7 per cent to 62 per cent in each sample village and 2 urban centres are considered with minimum of 80 sample households. The both secondary and primary data so collected have been processed, analysed and represented through simple and meaningful statistical and cartographic techniques. A literature review undertaken at international, national and regional scale has provided an insight to carry out the present work in proper perspective.

Chapter 2 is devoted to present an account of geographical context of the study area with respect to its physical setting, and socio-economic and cultural environment to understand the prevailing socio-spatial diversity in human habitat and socio-economic well-being. This chapter

mainly includes the location and situation of the BTAD region, and its historical background of formation, physical characteristics including relief, drainage, climate, etc, and socio-economic characteristics like population growth, population density, ethno-religious composition, occupational composition, economic diversity, transport and communication systems, etc. Besides, a brief geographical profile of each sample village and town has been presented here to understand the location specific patterns and processes.

So far the physical background of the region is concerned, it can broadly be categorized into foothill region and Brahmaputra plain region. The entire northern zone falls under foothills of Bhutan Himalayan ranges of relatively higher elevation formed by Bhabar zone and Terai zone, known as zones of disappearance and reappearance of the Himalayan rivers before reaching the active plains of the Brahmaputra. However, the greater portion of the BTAD region falls under Brahmaputra plain formed by aggradational activity of numerous rivers along with river Brahmaputra. The deposits of older alluvium form the highland plain of Brahmaputra plain, the southern part is interrupted by a hillock called Chakrasila, and recent deposits of alluvium carried by braided Brahmaputra river and its tributaries form floodplain.

Climatically, the BTAD region experiences a sub-tropical climate with hot and humid summer and cold and dry winter having average annual rainfall of 250 cm, while temperature varies from 33˚C-38˚C in summer to 9˚C-10˚C in winter. Such a physical condition favours growth of tropical semi-evergreen forest in the region leading to development of disease causing pathogens.

The population character of the region is quite diverse in nature in terms of growth, distribution, density, ethnic composition, religious composition, occupation, economic condition, etc. Such a diverse population characteristics of the region contribute significantly towards occurrence of various diseases and make the health situation quite complex.

Chapter 3 endeavors to analyse the patterns of literacy and educational attainment and their prevailing male-female disparities in the BTAD region in spatio-temporal perspectives. The community level literacy pattern reveals that the literacy rate among the scheduled tribes (ST) (69.57 per cent) is higher than among the scheduled castes (SC) (68 per cent) and non-scheduled population (64.20 per cent). This is largely due to the presence of socio-economically backward population groups like Tea Tribes, Rajbongshis, non-indigenous Muslim communities, Nepalis, etc. within non-scheduled population segment. In the case of general educational attainment also,

the picture is not satisfactory one, as a huge proportion of literates constitutes educational level below HSLC (70.86 per cent) as against a very small proportion constituting educational level of graduation (6.30 per cent). Further, the study of age-specific educational attainment in age group 22-35, by considering 22 as the minimum age for becoming graduate, reveals that although the higher education is advancing, still the proportion of graduates in 22-35 age group is only 9.01 per cent and the figure in the case of technical and professional graduates is very minimal (0.62 per cent). Among the major population groups, the proportions of general graduates (11.02 per cent) and technical or professional graduates (1.00 per cent) are considerably higher among the Bodos. Similarly, the picture with respect to educational attainment is somewhat encouraging in the urban areas among most of the population groups. Thus, the study of literacy pattern and educational attainment presents a varied picture in the BTAD region with respect to spatial and social terms. Although there has been some progress in this respect in recent time, it has not yet reached an encouraging position, and as such the impact of educational attainment towards raising the consciousness level for health among most of the groups of people would not be significant.

In Chapter 4 occupational patterns and associated economic condition of BTAD region are presented in terms of work participation rate and its male-female differentials. As a correlate of educational enhancement and maintenance of healthy state of well-being, a thorough analysis of occupational structure and its variation is attempted. So far work participation rate is concerned, although it has increased from 27.26 per cent in 1971 to 40.84 per cent in 2011, the male-female difference is still quite high (26.49 per cent). In view of labour intensive agricultural and allied activities the female work participation is considerably higher in the rural areas and limited economic opportunities round the year keep the female work participation quite lower in the urban areas. Among the major population groups in the region, the tea-tribe communities witness quite low gender differential in work participation as reflected in female work participation rate (33.44 per cent) and male work participation rate (36.07 per cent).

The occupational composition, which influences the state of economic condition, determines the purchasing power of people and maintenance of health conditions. Despite considerable progress and diversity in the economy, the proportion of workforce in agricultural sector (Cultivators: 39.72 per cent; Agricultural Labourer: 20.12 per cent) has still been quite high in BTAD. The study further reveals that despite reduction of agricultural workers from

72.54 per cent to 57.26 per cent during 1971-2011, the proportion of non-agricultural workers in BTAD (40.16 per cent) has remained considerably lower than the corresponding state average (50.65 per cent).

So far agricultural workforce is concerned, the proportion of male cultivators is higher in BTAD (45.20 per cent) than the corresponding state average (36.29 per cent). However, the proportion of agricultural labourer is considerably higher among the females (28.49 per cent) than the males both in BTAD (16 per cent) and entire state (20.89 per cent). In the contrary to above, due to higher participation of women in household works, female participation in non-agricultural activities is slightly higher than the corresponding male participation.

So far community level variation in occupational composition is concerned, the proportion of cultivators is the highest among the non-indigenous Muslims (50 per cent), followed by Nepalis (49.74 per cent), and it is the lowest among the Bengali Hindus (3.75 per cent), as greater proportion of them is engaged mainly in small and large scale business sector (40.84 per cent). However, a huge proportion of people belonging to tea-tribe community are engaged as daily wage labourers (72.73 per cent), as most of them work as tea labourers, agricultural wage labourers, etc. An exploitation of children in age group 5-14 as a source of cheap labour in various sectors like agriculture, industry, household work, etc. as observed in some of the villages in the BTAD has become a matter of great concern. Among different communities, the proportion of child labour is found to be quite high among the tea- tribes (5.96 per cent) and non-indigenous Muslims (4.17 per cent).

The chapter 5 of the report deals with the spatio-temporal pattern of demographic characteristics on the basis of fertility, mortality, sex ratio, age composition, life expectancy, age at female marriage, etc. in both spatial and social contexts to assess the physical well-being of BTAD region. So far the national level figure of CBR is concerned, it is very high CBR (20.8 per thousand) and in state level (22.0 per thousand) particularly in BTAD (24.86 per thousand) the figure is even higher than the national rate (SRS Bulletin, 2016) along with high child-woman ratio (3.91). In respect of community level study of fertility rate, the CBR and child-woman ratio are found to be very high among the non-indigenous Muslim community and indigenous Muslim community. The chapter also includes the mortality pattern. However, in these respect the regions of BTAD have still possessed very high death rate (10.44 per thousand) as compared to average figure of India 6.5 and the state of Assam (7.1) (SRS Bulletin, 2016). The chapter also

includes the child mortality pattern, as the status of physical well-being can also be reflected through both Infant Mortality Rate (IMR) and Under 5 Mortality Rate (U5MR).

In terms of sex ratio, the overall sex ratio of BTAD (968) is quite encouraging as compared to the state average (958). The spatial variation of sex ratio reveals a considerably higher figure in Baksa (974), followed by Udalguri (973) and lower in Kokrajhar (959) district (2011 Census). The intercommunity variation of sex ratio reveals prevalence of lower sex ratio among non-SCST population (954) group as compared to the SC (942) and ST (999) population. Apart from it, the region also has a very low life expectancy, high dependency rate and low age at female marriage, and it thus reflects a low level of physical well-being and demographic character in the region.

The sixth chapter of this work includes the study of various indicators associated with socio-economic well-being comprising proper education and social structure; satisfied occupation, income and wealth; access to civic amenities and sanitation condition; health awareness and quality of life; access to various services and govt. welfares, etc. It also deals with the socio-spatial variation of socio-economic well-being in the region in terms of education, occupation, income and wealth, civic amenities, sanitation condition, disease incidence pattern, prevailing health care services, etc.

7.2 Conclusion

On the basis of foregoing analysis carried out mainly in chapter 3 to chapter 6 and the summary presented above, the following specific findings are derived:

(i) The lack of consciousness towards the need of education, lack of availability of number of educational institutions in an around the villages, inequality in the distribution of educational institutions throughout the region leads to the wide variation of literacy rate in the BTAD region. The pattern of literacy rate although increased from 19.54 per cent to 66.25 per cent during 1971-2011 in the BTAD region, it is considerably and consistently lower than the state average and national average throughout the above period.

(ii) The trend of literacy rate is comparatively lower in terms of females as compared to male counterparts and the male-female gap is significantly found to be higher than the state overall figure. Although the literacy and educational level with respect to both male and female in the BTAD region has been lower than the corresponding overall Assam state and national averages,

it is somewhat comparatively better both among the scheduled castes (SC) and scheduled tribes (ST) than that of the non-SC/ST population consisting of various socio-economically backward communities like tea-tribes, non-indigenous Muslims, Nepalis, etc. Being education a relatively recent phenomenon in most parts of the BTAD, the overall educational development is very low throughout the entire region, more particularly in higher age groups and among tea-tribes and non-indigenous Muslims.

(iii) Although the literacy rate among the surveyed area appears to be quite high, the picture however is quite discouraging in terms of educational attainment. It is observed that proportion of literates with educational level of graduation and above (6.30 per cent) including the technical graduates (0.51 per cent) is significantly lower than the proportion of primary, high and HSLC/HS literates in the BTAD region. The community level study reveals that among all the dominant communities the condition of Nepali community and Tea Tribes is worse in terms of educational attainment level, as the proportion of graduates and above is found to be insignificant (Nepali: 0.27 per cent; Tea Tribes: 0.64 per cent). The relationship study of percentage of graduation and above population with percentage of tertiary sector workers reflects a very high positive correlation (r=+0.73) and significant at 0.01 significance level.

(iv) The age-specific study of educational attainment indicates that the progress of education is largely a recent phenomenon in most parts of the study area, as the proportion of literates with educational level graduate and above is found to be 9.01 per cent in the age group 22-35 as compared to 5.69 per cent in age group 35-60 and 2.86 per cent in age group 60 and above.

(v) The study also reveals that the level of educational development throughout the districts and communities is not equal, as Chirang (-1.57) and Baksa (-1.45) districts indicate still negative educational development, while the mixed community dwelling in the urban areas have considerably higher level of educational development (10.48) as compared to the rest of the community villages.

(vi) Although the overall work participation rate in most parts of the BTAD region is considerably higher than the state average, the proportion of workforce in the non-agricultural sector is quite low due to large-scale dependence on the traditional agricultural sector, and as such it results in a very poor economic condition among a large segment of population.

Moreover, there is still large gender gap in terms of work participation particularly among SC population.

(vii) The BTAD and also the rest of the country have not been able to control the birth rate till now. It is still as high as 24.86 per thousand, which is even higher than the national rate (20.8 per thousand). The child-woman ratio is also very high and more particularly among tea tribes, indigenous and non-indigenous Muslims affecting women health and physical well-being. The prevalence of high rate of child birth is closely associated with educational level and there is a strong negative relationship between CBR and HSLC and above educational attainment level (r= - 0.72) and is significant at 0.05 significance level.

(viii) The BTAD still experiences a very high death rate (10.44 per thousand) as compared to country's death rate (6.5) and state's death rate (7.1) (SRS Bulletin, 2016) despite of advancement of medical science. Apart from it, child mortality rate (IMR) is high (50.26 per thousand) and U5MR (63.10 per thousand) and it is long way to attain the desirable level. Among all the communities, the death rate is found to be quite high among the tea tribe communities (17.80 per thousand).

(ix) Although the sex discrimination at child birth is a major concern throughout the country till date, the BTAD region occupies a better position in this respect and the sex ratio is found to be very high among the ST population (999) of the region.

(x) The average life expectancy at birth in the BTAD region is still only 56.84 year, which is significantly lesser than the national figure (66.90 as per 2011 Census) leading to low proportion of 60 and above age group population in the region. It signifies a poor level of physical well-being.

(xi) Despite minimum female age at marriage being 18 year, the non-indigenous Muslim community in the BTAD region still witness 17.21 year of mean female age at marriage. The average family size in the region has still been high (5.19).

(xii) The proportion of child labour in BTAD region (4.43 per cent) is found to be considerably higher than the state average (4.05 per cent) and national average (3.90 per cent). It is found to be the highest among tea-tribe community (5.96 per cent), followed by non-indigenous Muslim community (4.17 per cent) due to poor economic condition among them.

(xiii) So far living condition is concerned, a huge proportion of sample households still uses unpurified drinking water (63.89 per cent) owing to poor accessibility to civic amenities and lack of knowledge regarding consumption of purified drinking water. In terms of use of toilet, a huge proportion (32.46 per cent) of households still practice open form of defecation and 39.97 per cent households with inferior kutcha toilets due to lack of awareness about its ill effects on health and economic constraints. It has been further observed that 83.59 per cent of the sample households in the region faces the problem of sewage water stagnation leading to large scale occurrence of viral fever, mosquito-borne diseases and water-borne diseases (14.78 per cent).

(xiv) Although regular intake of balanced diet is important for physical well-being, a very small proportion of population in the BTAD region has the knowledge of maintaining balanced diet (14.44 per cent). Similarly, the proportion of use of food supplements (19.98 per cent) for the healthy growth is very less in the entire region. As the consumption of tobacco, betelnut, etc. is proved to be unhealthy and therefore it stands as a hindrance in maintaining good health. But, the study reveals that as high as 91.32 per cent of sample population in the region has the habit of consuming tobacco and betelnut as a part of age-old tradition. Besides, consumption of alcohol is also found to be quite high (48.65 per cent) in the region.

(xv) High incidence of diseases related to cold, cough, sores and chest problem, sufferings from different pains like arthritis, rheumatism, etc. and viral fever, mosquito-borne diseases and water-borne diseases as prevalent as common diseases among a large segment of sample population hinders the healthy status of life in most parts of the BTAD region. Further, the community level study reveals high incidence of diseases like diabetes and cancer in the urban areas irrespective of social group. A high proportion of child death in the region is still associated with common cold, fever and cough, followed by water-borne diseases, viral and mosquito-borne diseases, etc.

(xvi) With one Civil Hospital (CH) up till 1975 in the entire BTAD region, the number of health care centres in public sector with respect to CH, SDCH, CHC, PHC and SC has increased to 698 along with 8 in private sector with a view to provide quality health care services in terms of specialized doctors, paramedical staff, diagnostic laboratories, hospital beds, etc. to the growing population with better area coverage. Although the overall position as per official statistics appears to be somewhat better in BTAD than that of the state as a whole, the picture in reality is far from satisfactory due to prevalence of non-functional nature of a large number of health care

centres and their facilities. Among the BTAD districts, the picture in this respect is slightly better in Kokrajhar and worst in Udalguri.

The foregoing study clearly reveals that the BTAD region has been lagging behind in respect of educational, occupational and overall demographic and socio-economic well-being. The various socio-economic factors along with literacy and education and occupation determine the prevailing scenario of poor well-being in BTAD. The prevailing demographic character and socio-economic well-being of BTAD region can be improved by adopting better socio-economic planning strategies. In the light of above observations the following few suggestions are put forth with a view to improve overall well-being of the region.

- As education helps to develop effective self direction towards habits, skills, resource and abilities to achieve a better life, strategies need to be evolved for adequate educational development among every section of population, more particularly among the socio-economically backward communities, so that an equilibrium and better socio-economic well-being can be achieved in every society of the BTAD region.
- The underlying economic condition strongly acts as one of the determining factors of various demographic character and socio-economic well-being, as sound economic condition strengthens the purchasing power of an individual and enhances treatment seeking behavior along with development of physical and socio-economic well-being. Hence, a considerable number of tertiary sector economic activities should be generated to improve overall well-being and standard of living. Apart from it as a large section of people in the study region belongs to economically poor category, steps need be taken to minimize the cost of treatment including advanced diagnostic systems along with provision of totally free health care for economically poorer section of the people.
- As the BTAD region still witnesses high CBR, CDR, IMR and U5MR, low life expectancy, poor knowledge of balanced diet, poor sanitation condition along with prevalence of water-borne diseases, etc., the required strategies need to be developed to spread and enhance the level of awareness in terms of various health related issues, as concern for health acts as strong component for maintaining healthy status of life. The community level participation in awareness programme should be given more emphasis rather limiting it to only at health worker level.
- The concentration and agglomeration of both public and private sector health care institutions

in the urban areas, more particularly with various specialized health care infrastructures, have contributed to poor accessibility from most of the interior villages of the region. Thus, proper management strategies should be implemented to decentralize the location of health care units covering different interior areas of the region with high concentration of population, and steps need be taken to better the transport and communication systems for proper utilization of health care facilities available in the urban areas.

- The strategies adopted for enhancement of efficiency of health care delivery system at government level have been hardly properly implemented or penetrated into grass root level due to urban focus. There is immediate need to strengthen the available health care centres like SC, PHC and CHC in the remote areas for the purpose of fulfilling the condition of first contact point between the advanced health care service systems of the urban areas and interior rural areas. Hence, the proper management and implementation of the various health care schemes should be given more priority at the grass root level and more particularly in the backward regions of BTAD.

Thus, looking at the prevalence of poor health care conditions in the midst of socio-economic backwardness, particularly with respect to education and occupation, the above few suggestions are put forward to improve the overall condition of health care service system and its delivery to cover most areas and people of the BTAD. However, the present research work is not free from limitations, as the results derived are mostly dependent on limited sample size and variables with obvious sampling errors. Thus, the study leaves scope for future research by enhancing sample size, variables and research questions.

EXECUTIVE SUMMARY

The lack of consciousness towards the need of education, lack of availability of number of educational institutions in an around the villages, inequality in the distribution of educational institutions throughout the region leads to the wide variation of literacy rate in the BTAD region. Although literacy rate has witnessed marked increase during 1971-2011 in the BTAD region, it is considerably and consistently lower than the state average and national average throughout the above period. The literacy rate is also considerably lower among the females as compared to male counterparts and the male-female gap is significantly found to be higher than the state overall figure. Although the literacy and educational level with respect to both male and female in the BTAD region has been lower than the corresponding overall Assam state and national averages, it is somewhat comparatively better both among the scheduled castes (SC) and scheduled tribes (ST) than that of the non-SC/ST population consisting of various socio-economically backward communities like tea-tribes, non-indigenous Muslims, Nepalis, etc. Being education a relatively recent phenomenon in most parts of the BTAD, the overall educational development is very low throughout the entire region, more particularly in higher age groups and among tea-tribes and non-indigenous Muslims. Although the literacy rate among the surveyed area appears to be quite high, the picture however is quite discouraging in terms of educational attainment. It is observed that proportion of literates with educational level of graduation and above (6.30 per cent) including the technical graduates (0.51 per cent) is significantly lower than the proportion of primary, high and HSLC/HS literates in the BTAD region. The community level study reveals that among all the dominant communities the condition of Nepali community and Tea Tribes is worse in terms of educational attainment level, as the proportion of graduates and above is found to be insignificant (Nepali: 0.27 per cent; Tea Tribes: 0.64 per cent). The relationship study of percentage of graduation and above population with percentage of tertiary sector workers reflects a very high positive correlation (r=+0.73) and significant at 0.01 significance level.

Although the overall work participation rate in most parts of the BTAD region is considerably higher than the state average, the proportion of workforce in the non-agricultural sector is quite low due to large-scale dependence on the traditional agricultural sector, and as

such it results in a very poor economic condition among a large segment of population. Moreover, there is still large gender gap in terms of work participation particularly among SC population.

The BTAD and also the rest of the country has not been able to control the birth rate till now. It is still as high as CBR 24.86 per thousand, which is even higher than the national rate (20.8 per thousand). The child-woman ratio is also very high and more particularly among tea tribes, indigenous and non-indigenous Muslims affecting women health and physical well-being. The prevalence of high rate of child birth is closely associated with educational level and there is a strong negative relationship between CBR and HSLC and above educational attainment level (r= - 0.72) and is significant at 0.05 significance level. The BTAD still experiences a very high death rate (10.44 per thousand) as compared to country's death rate (6.5) and state's death rate (7.1) (SRS Bulletin, 2016) despite of advancement of medical science. Apart from it, child mortality rate (IMR) is high (50.26 per thousand) and U5MR (63.10 per thousand) and it is long way to attain the desirable level. Among all the communities, the death rate is found to be quite high among the tea tribe communities (17.80 per thousand). Although the sex discrimination at child birth is a major concern throughout the country till date, the BTAD region occupies a better position in this respect and the sex ratio is found to be very high among the ST population (999) of the region. The average life expectancy at birth in the BTAD region is still only 56.84 year, which is significantly lesser than the national figure (66.90 as per 2011 Census) leading to low proportion of 60 and above age group population in the region. It signifies a poor level of physical well-being.

Although regular intake of balanced diet is important for physical well-being, a very small proportion of population in the BTAD region has the knowledge of maintaining balanced diet (14.44 per cent). Similarly, the proportion of use of food supplements (19.98 per cent) for the healthy growth is very less in the entire region. As the consumption of tobacco, betelnut, etc. is proved to be unhealthy and therefore it stands as a hindrance in maintaining good health. But, the study reveals that as high as 91.32 per cent of sample population in the region has the habit of consuming tobacco and betel-nut as a part of age-old tradition. Besides, consumption of alcohol is also found to be quite high (48.65 per cent) in the region.

High incidence of diseases related to cold, cough, sores and chest problem, sufferings from different pains like arthritis, rheumatism, etc. and viral fever, mosquito-borne diseases and water-borne diseases as prevalent as common diseases among a large segment of sample population hinders the healthy status of life in most parts of the BTAD region. Further, the community level study reveals high incidence of diseases like diabetes and cancer in the urban areas irrespective of social group. A high proportion of child death in the region is still associated with common cold, fever and cough, followed by water-borne diseases, viral and mosquito-borne diseases, etc. With one Civil Hospital (CH) up till 1975 in the entire BTAD region, the number of healthcare centres in public sector with respect to CH, SDCH, CHC, PHC and SC has increased to 698 along with 8 in private sector with a view to provide quality health care services in terms of specialized doctors, paramedical staff, diagnostic laboratories, hospital beds, etc. to the growing population with better area coverage. Although the overall position as per official statistics appears to be somewhat better in BTAD than that of the state as a whole, the picture in reality is far from satisfactory due to prevalence of non-functional nature of a large number of healthcare centres and their facilities. Among the BTAD districts, the picture in this respect is slightly better in Kokrajhar and worst in Udalguri.

Thus it is clear that the BTAD region has been lagging behind in respect of educational, occupational and overall demographic and socio-economic well-being. The various socio-economic factors including discouraging situation of literacy and education and occupation and lack of govt. initiative have been responsible for the prevailing scenario of poor physical and socio-economic well-being in BTAD.

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Appendix-1
Male-Female Differentials in Literacy Rate at Circle Level in BTAD, 1971-2011

Districts	Revenue Circles	Literacy Rate (in per cent)											
		1971*				2001				2011			
		Male	Female	Male-Female Differentials	DI	Male	Female	Male-Female Differentials	DI	Male	Female	Male-Female Differentials	DI
KOKRAJHAR	Bagribari (pt)	31.29	12.17	19.12	0.86	59.08	42.15	16.93	0.33	61.27	49.93	11.34	0.20
	Bhawraguri	29.29	14.54	14.75	0.66	60.10	41.69	18.41	0.36	69.24	56.11	13.13	0.21
	Bilasipara (pt)	25.59	8.66	16.93	0.99	50.09	33.84	16.25	0.38	61.15	50.45	10.70	0.19
	Chapar (pt)	19.89	5.34	14.55	1.13	55.46	38.44	17.02	0.36	60.54	50.37	10.17	0.18
	Dhubri (pt)	30.37	13.21	17.16	0.78	61.28	46.11	15.17	0.28	67.06	59.46	7.60	0.12
	Dotoma	33.82	11.85	21.97	0.95	72.77	52.28	20.49	0.33	79.02	63.66	15.36	0.21
	Golokganj (pt)	38.64	14.03	24.61	1.00	55.18	38.72	16.46	0.35	69.76	55.90	13.86	0.22
	Gossaigaon (pt)	20.34	7.93	12.41	0.86	52.14	35.98	16.16	0.35	68.70	54.82	13.88	0.22
	Kokrajhar (pt)	34.18	14.65	19.53	0.78	66.90	47.49	19.41	0.34	76.13	62.02	14.11	0.20
	Overall	29.29	11.76	17.53	0.84	60.96	43.01	17.95	0.34	71.89	58.27	13.62	0.21
CHIRANG	Barnagar (pt)	11.59	3.89	7.70	0.96	46.81	30.54	16.27	0.42	55.98	45.83	10.15	0.20
	Bengtol	22.55	7.60	14.95	0.93	52.38	35.14	17.24	0.39	66.03	51.76	14.27	0.24
	Bijni (pt)	30.33	11.87	18.46	0.86	63.58	44.09	19.49	0.36	72.54	59.01	13.53	0.20
	Bongaigaon (pt)	36.52	14.59	21.93	0.84	76.26	59.63	16.63	0.24	84.18	73.16	11.02	0.14
	Kokrajhar (pt)	46.86	26.71	20.15	0.54	82.61	65.69	16.92	0.23	85.24	73.31	11.93	0.15
	Sidli (pt)	25.10	8.82	16.28	0.94	60.12	40.54	19.58	0.39	66.07	51.99	14.08	0.24
	Overall	28.25	10.92	17.33	0.87	62.04	43.01	19.03	0.36	70.24	56.65	13.59	0.21
BAKSA	Baganpara (pt)	36.27	11.42	24.85	1.10	72.10	49.26	22.84	0.37	76.68	60.44	16.24	0.24
	Bajali (pt)	35.56	13.02	22.54	0.89	82.65	56.64	26.01	0.37	81.07	64.81	16.26	0.22
	Barama (pt)	34.47	12.33	22.14	0.93	80.24	60.77	19.47	0.27	85.07	71.87	13.20	0.17
	Barnagar (pt)	27.26	9.00	18.26	0.98	61.46	41.78	19.68	0.38	70.58	56.68	13.90	0.22
	Baksa	32.42	11.44	20.98	0.94	73.13	52.38	20.75	0.33	79.11	63.18	15.93	0.22
	Ghograpara (pt)	39.35	11.94	27.41	1.07	81.53	58.67	22.86	0.32	84.86	65.71	19.15	0.25
	Goreswar (pt)	28.44	9.29	19.15	0.99	74.86	53.14	21.72	0.34	81.19	65.60	15.59	0.21
	Jalah (pt)	34.94	12.62	22.32	0.92	78.40	54.20	24.20	0.36	83.66	66.53	17.13	0.23
	Pathorighat (pt)	31.78	12.03	19.75	0.89	82.72	65.82	16.90	0.23	87.62	74.40	13.22	0.16
	Rangia (pt)	28.96	8.14	20.82	1.09	66.94	45.14	21.80	0.39	78.37	64.13	14.24	0.20
	Sarupeta (pt)	32.03	7.80	24.23	1.19	69.69	46.84	22.85	0.39	76.30	59.08	17.22	0.25
	Tamulpur	23.78	6.39	17.39	1.12	63.91	40.37	23.54	0.45	72.20	55.28	16.92	0.26
	Tihu (pt)	38.88	16.24	22.64	0.82	81.94	59.29	22.65	0.32	84.30	71.31	12.99	0.17
	Overall	29.70	9.74	19.96	0.99	70.33	48.34	21.99	0.37	77.03	61.27	15.76	0.23
UDALGURI	Dalgaon (pt)	23.22	9.77	13.45	0.80	62.37	43.20	19.17	0.36	70.14	56.03	14.11	0.22
	Dhekiajuli (pt)	26.15	7.75	18.40	1.06	60.19	42.70	17.49	0.34	66.04	55.69	10.35	0.17
	Harisinga	22.89	10.13	12.76	0.75	64.66	43.70	20.96	0.38	70.57	54.56	16.01	0.25
	Kalaigaon (pt)	28.35	10.53	17.82	0.90	75.26	56.39	18.87	0.28	82.54	68.58	13.96	0.18
	Khoirabari (pt)	27.10	9.58	17.52	0.94	76.81	55.70	21.11	0.32	81.80	66.58	15.22	0.20
	Mangaldai (pt)	18.27	7.98	10.29	0.78	62.57	48.81	13.76	0.25	74.91	63.55	11.36	0.16
	Mazbat	20.94	6.54	14.40	1.01	59.30	39.55	19.75	0.40	66.33	51.10	15.23	0.26
	Pathorighat (pt)	37.19	21.51	15.68	0.54	83.99	71.43	12.56	0.16	84.48	73.68	10.80	0.14
	Udalguri	26.82	10.19	16.63	0.88	64.22	46.14	18.08	0.33	71.98	59.10	12.88	0.20
	Overall	24.79	9.60	15.19	0.86	65.94	46.33	19.61	0.35	72.57	58.05	14.52	0.22
BTAD		27.95	10.42	17.53	0.90	65.24	45.50	19.74	0.35	73.39	58.89	14.50	0.22
ASSAM		36.70	18.60	18.10	0.64	71.28	54.61	16.67	0.26	77.85	66.27	11.58	0.16

*1971 Literacy Rate includes 0-6 Population (Based on recasting of 1971 data as per 2011 Census administrative boundaries).

Source: Census of India, Assam, Primary Census Abstract, 1971, 2001 and 2011

Appendix-2

Age-Specific Variation of Literacy Rate in BTAD, 2013-2015

Districts	Population Groups	Urban Centres/ Villages	Age Groups											
			Below 20			20-40			40-60			60 Above		
			T	M	F	T	M	F	T	M	F	T	M	F
Kokrajhar	Mixed Community	Kokrajhar (MB)	100	100	100	100	100	100	97.78	100	95.24	83.78	100	70.00
	Bodo	Rangalikhata II	100	100	100	93.10	96.15	90.62	83.72	86.36	80.95	40.00	60.00	20.00
		Dawaguri I	100	100	100	83.93	95.31	68.75	49.06	64.28	32.00	16.67	42.86	0
	Tea Tribes	Dolabari Bagicha	85.98	89.09	82.69	30.61	47.92	14.00	10.64	20.00	0.00	6.67	12.50	0
	Koch-Rajbongshi	Balagaon I	100	100	100	79.23	94.28	66.67	50.00	68.18	34.61	53.33	70.00	20.00
		Guwabari	73.31	97.50	84.00	86.24	92.73	79.63	75.00	91.18	35.71	25.00	42.86	11.11
	Bengali Hindu	Titaguri II	100	100	100	88.76	97.56	81.25	62.86	81.08	45.45	45.00	80.00	10.00
	Non Indigenous Muslims	Gokulkhata II	98.41	100	96.67	77.06	83.93	69.81	43.18	51.85	29.41	16.00	33.33	0
Chirang	Bodo	Bengtol II	100	100	100	94.85	95.59	94.12	73.44	75.67	70.37	27.27	60.00	0
		Tukrajhar II	100	100	100	94.93	97.06	92.86	81.82	89.28	76.31	65.22	75.00	42.86
	Koch-Rajbongshi	Durgapur	98.61	100	97.56	91.67	97.96	85.11	51.28	80.00	21.05	42.86	75.00	0
		Shupariguri No.1	97.37	96.30	100	93.24	92.31	94.28	86.67	100	73.33	0	0	0
	Non Indigenous Muslims	Serfunguri	88.04	92.45	82.05	66.07	75.92	56.90	16.67	26.31	5.88	0	0	0
Baksa	Bodo	Chouraguri	95.65	96.77	94.74	96.12	98.24	93.48	60.78	70.83	51.85	18.75	33.33	0
		Barangabari	98.79	97.73	100	93.10	100	88.23	52.27	70.83	30.00	6.25	10.00	0
	Non-Tribal Assamese	Reclamation Block A	100	100	100	97.30	100	95.31	88.89	100	73.08	68.42	71.43	60.00
	Nepali	Dhanshiripur	98.39	100	97.30	90.76	90.16	91.38	63.23	77.78	46.87	7.14	15.38	0
	Indigenous Muslims	Dighaldonga	96.51	98.18	93.55	77.88	92.59	64.41	27.59	60.00	37.50	20.00	27.27	11.11
Udalguri	Mix Community	Udalguri (TC)	97.67	100	95.55	96.87	98.61	95.45	86.17	90.57	80.49	75.00	80.00	68.75
	Bodo	Songlabari	100	100	100	84.72	93.75	77.50	55.36	75.00	35.71	12.00	20.00	0
		Mantikiri	100	100	100	92.12	98.27	86.96	80.00	92.86	63.64	18.75	42.86	0
	Tea Tribes	Khokhagaon	97.59	97.83	97.30	73.19	85.71	60.29	15.91	23.81	8.69	0	0	0
	Non-Tribal Assamese	Bar Jalah	96.55	100	92.31	94.12	98.46	90.14	85.51	100	68.75	48.00	55.55	28.57
	Nepali	Nepaligaon	97.26	97.37	97.14	68.69	83.87	50.94	16.67	26.09	5.26	15.38	33.33	0
	Bengali Hindu	Pachim Nalbari	96.10	100	92.68	77.52	92.31	62.50	36.23	51.35	18.75	10.53	18.18	0
BTAD			**97.65**	**98.58**	**96.66**	**85.01**	**91.90**	**78.40**	**62.52**	**74.05**	**49.05**	**35.98**	**48.99**	**20.39**

Source: Primary Survey, 2013-2015.

Appendix-3

Educational Attainments as Percentage of Literates in BTAD, 2013-2015

Districts	Population Groups	Urban Centres/ Villages	Below HSLC			HSLC/HS			General Graduates and above			Technical Graduates		
			T	M	F	T	M	F	T	M	F	T	M	F
Kokrajhar	Mixed Community	Kokrajhar (MB)	25.00	16.79	34.45	45.31	46.71	43.70	26.56	30.66	21.85	3.12	5.84	0
	Bodo	Rangalikhata II	28.57	27.12	30.00	40.34	38.98	41.67	29.41	30.51	28.33	1.68	3.39	0
		Dawaguri I	46.51	42.31	52.94	47.67	48.08	47.06	5.81	9.61	0	0	0	0
	Tea Tribes	Dolabari Bagicha	87.40	88.61	85.42	12.60	11.39	14.58	0	0	0	0	0	0
	Koch-Rajbongshi	Balagaon I	76.52	72.06	82.98	20.87	25.00	14.89	2.61	2.94	2.13	0	0	0
		Guwabari	76.04	76.23	75.71	20.83	19.67	22.86	3.12	4.10	1.43	0	0	0
	Bengali Hindu	Titaguri II	81.63	75.67	89.41	18.37	24.32	10.59	0	0	0	0	0	0
	Non Indigenous Muslims	Gokulkhata II	71.69	72.73	70.15	23.49	21.21	26.86	4.82	6.06	2.98	0	0	0
Chirang	Bodo	Bengtol II	64.10	57.26	71.82	29.91	36.29	22.73	4.70	6.45	2.73	5.55	6.45	4.54
		Tukrajhar II	39.76	30.49	48.82	33.73	36.36	30.71	24.50	30.58	18.90	2.01	2.46	1.57
	Koch-Rajbongshi	Durgapur	90.61	89.00	92.59	8.29	10.00	6.17	1.10	1.00	1.23	0	0	0
		Shupariguri No.1	80.77	80.26	81.48	16.15	15.79	16.67	3.08	3.95	1.85	0	0	0
	Non Indigenous Muslims	Serfunguri	94.12	90.82	98.61	5.29	8.16	1.39	0.59	1.02	0	0	0	0
Baksa	Bodo	Chouraguri	91.37	84.76	98.91	7.61	13.33	1.09	1.01	1.90	0	0	0	0
		Barangabari	90.22	83.33	97.73	9.78	16.67	2.27	0	0	0	0	0	0
	Non-Tribal Assamese	Reclamation Block A	55.81	46.36	65.71	36.28	41.82	30.48	7.44	10.91	3.81	0.46	0.91	0
	Nepali	Dhanshiripur	85.71	77.27	95.00	13.81	21.82	5.00	0.48	0.91	0	0	0	0
	Indigenous Muslims	Dighaldonga	88.72	83.87	97.18	11.28	16.13	2.82	0	0	0	0	0	0
Udalguri	Mix Community	Udalguri (TC)	43.89	41.24	46.71	37.79	38.98	36.53	17.15	19.21	14.97	1.16	0.56	1.80
	Bodo	Songlabari	81.10	81.20	81.00	14.28	15.38	13.00	4.61	3.42	6.00	0	0	0
		Mantikiri	76.21	70.31	83.84	23.79	29.69	16.16	0	0	0	0	0	0
	Tea Tribes	Khokhagaon	85.64	85.32	86.07	12.76	12.84	12.66	1.59	1.83	1.26	0	0	0
	Non-Tribal Assamese	Bar Jalah	64.43	57.82	73.58	30.43	34.01	25.47	4.74	7.48	0	0.39	0.68	0
	Nepali	Nepaligaon	90.85	87.91	95.16	9.15	12.09	4.84	0	0	0	0	0	0
	Bengali Hindu	Pachim Nalbari	74.27	73.60	67.21	20.39	20.00	27.87	5.34	6.4	0	0	0	0
	Overall Average		70.86	68.37	74.13	22.32	24.03	20.13	6.30	6.98	5.37	0.51	0.62	0.37

Source: Primary Survey, 2013- 2015.

Appendix-4
Age-Specific Distribution of Literates with Educational Level in BTAD, 2013-2015

Districts	Population Groups	Urban Centres/ Villages	Educational Level	Age Groups		
				22-35	**35-60**	**60+**
Kokrajhar	Mixed Community	Kokrajhar (MB)	Below HSLC	6.90	11.30	37.14
			HSLC/HS	34.48	49.56	31.43
			General Graduates and Above	53.45	30.43	11.43
			Technical/ Professional Graduates and Above	5.17	6.09	0.00
	Bodo	Rangalikhata II	Below HSLC	9.09	20.00	10.00
			HSLC/HS	43.18	32.73	10.00
			General Graduates and Above	34.09	30.91	20.00
			Technical/ Professional Graduates and Above	0.00	3.64	0.00
		Dawaguri I	Below HSLC	20.22	21.13	16.67
			HSLC/HS	60.67	23.94	0.00
			General Graduates and Above	10.11	1.41	0.00
			Technical/ Professional Graduates and Above	0.00	0.00	0.00
	Adivasi	Dolabari Bagicha	Below HSLC	21.82	7.69	6.67
			HSLC/HS	10.91	7.69	0.00
			General Graduates and Above	0.00	0.00	0.00
			Technical/ Professional Graduates and Above	0.00	0.00	0.00
	Koch-Rajbongshi	Balagaon I	Below HSLC	53.70	42.86	40.00
			HSLC/HS	25.92	7.94	13.33
			General Graduates and Above	1.85	3.17	0.00
			Technical/ Professional Graduates and Above	0.00	0.00	0.00
		Guwabari	Below HSLC	62.86	60.00	17.65
			HSLC/HS	21.43	9.33	0.00
			General Graduates and Above	4.28	2.67	0.00
			Technical/ Professional Graduates and Above	0.00	0.00	0.00
	Bengali Hindu	Titaguri II	Below HSLC	59.09	57.78	35
			HSLC/HS	30.30	11.11	10.00
			General Graduates and Above	0.00	0.00	0.00
			Technical/ Professional Graduates and Above	0.00	0.00	0.00
	Non Indigenous Muslims	Gokulkhata II	Below HSLC	44.59	29.41	8.00
			HSLC/HS	18.92	20.59	4.00
			General Graduates and Above	10.81	0.00	0.00
			Technical/ Professional Graduates and Above	0.00	0.00	0.00
Chirang	Bodo	Bengtol II	Below HSLC	50.59	47.78	27.27
			HSLC/HS	34.12	22.22	0
			General Graduates and Above	9.41	5.55	0
			Technical/ Professional Graduates and Above	1.18	0	0
		Tukrajhar II	Below HSLC	35.95	22.58	13.04
			HSLC/HS	26.97	29.03	26.09
			General Graduates and Above	28.09	27.96	26.09
			Technical/ Professional Graduates and Above	5.62	3.22	0
	Koch-Rajbongshi	Durgapur	Below HSLC	81.94	54.10	42.86
			HSLC/HS	9.72	9.84	0
			General Graduates and Above	1.39	1.64	0
			Technical/ Professional Graduates and Above	0	0	0
		Shupariguri No.1	Below HSLC	65.91	73.47	0
			HSLC/HS	15.91	14.28	0
			General Graduates and Above	6.82	2.04	0
			Technical/ Professional Graduates and Above	0	0	0
	Non Indigenous Muslims	Serfunguri	Below HSLC	61.43	25	0
			HSLC/HS	5.71	1.78	0
			General Graduates and Above	1.43	0	0
			Technical/ Professional Graduates and Above	0	0	0
Baksa	Bodo	Chouraguri	Below HSLC	81.67	65.79	12.5
			HSLC/HS	13.33	5.26	0
			General Graduates and Above	3.33	0	0
			Technical/ Professional Graduates and Above	0	0	0
		Barangabari	Below HSLC	85.45	48.44	6.25
			HSLC/HS	9.09	9.37	0
			General Graduates and Above	0	0	0
			Technical/ Professional Graduates and Above	0	0	0
	Non-Tribal Assamese	Reclamation Block A	Below HSLC	31.88	48.94	42.10
			HSLC/HS	55.07	28.72	15.79
			General Graduates and Above	11.59	8.51	0

			Technical/ Professional Graduates and Above	0	1.06	0
	Nepali	Dhanshiripur	Below HSLC	70.73	62.64	7.14
			HSLC/HS	19.51	3.30	0
			General Graduates and Above	1.22	0	0
			Technical/ Professional Graduates and Above	0	0	0
	Indigenous Muslims	Dighaldonga	Below HSLC	68.83	45.71	9.52
			HSLC/HS	5.19	14.28	0
			General Graduates and Above	0	0	0
			Technical/ Professional Graduates and Above	0	0	0
Udalguri	Mix Community	Udalguri (TC)	Below HSLC	23.58	34.07	41.67
			HSLC/HS	41.51	38.52	19.44
			General Graduates and Above	30.19	16.29	13.89
			Technical/ Professional Graduates and Above	2.83	0.74	0
	Bodo	Songlabari	Below HSLC	60.20	45.34	3.85
			HSLC/HS	14.28	4.65	3.85
			General Graduates and Above	6.12	4.65	0
			Technical/ Professional Graduates and Above	0	0	0
		Mantikiri	Below HSLC	68.35	66.67	17.65
			HSLC/HS	22.78	20.24	11.76
			General Graduates and Above	1.26	0	0
			Technical/ Professional Graduates and Above	0	0	0
	Adivasi	Khokhagaon	Below HSLC	60.82	30.88	0
			HSLC/HS	11.34	5.88	0
			General Graduates and Above	2.06	0	0
			Technical/ Professional Graduates and Above	0	0	0
	Non-Tribal Assamese	Bar Jalah	Below HSLC	62.00	70.00	60.87
			HSLC/HS	32.00	25.00	39.13
			General Graduates and Above	5.33	5.00	0
			Technical/ Professional Graduates and Above	0.67	0	0
	Nepali	Nepaligaon	Below HSLC	66.67	23.73	8.33
			HSLC/HS	6.94	6.78	0
			General Graduates and Above	0.00	0.00	0.00
			Technical/ Professional Graduates and Above	0.00	0.00	0.00
	Bengali Hindu	Pachim Nalbari	Below HSLC	57.5	30.61	9.09
			HSLC/HS	22.5	12.24	0
			General Graduates and Above	2.5	2.04	0
			Technical/ Professional Graduates and Above	0	0	0
Overall Average			Below HSLC	52.47	41.84	18.93
			HSLC/HS	23.67	16.57	7.39
			General Graduates and Above	9.01	5.69	2.86
			Technical/ Professional Graduates and Above	0.62	0.59	0

Source: Primary Survey, 2013- 2015.

Appendix-5

Occupational Composition at Circle Level in BTAD, 1971-2011

Districts	Circles	Occupational Composition (in Percentage)											
		1971				2001				2011			
		C	AL	AW	NAW	C	AL	AW	NAW	C	AL	AW	NAW
KOKRAJHAR	Bagribari (pt)	68.87	11.70	80.57	19.43	48.77	24.05	72.82	27.18	54.88	19.29	74.17	25.83
	Bhawraguri	65.57	14.16	79.73	20.26	40.73	27.94	68.67	31.32	45.21	22.98	68.19	31.81
	Bilasipara (pt)	85.22	8.91	94.14	5.86	56.64	25.57	82.21	17.79	59.56	28.40	87.97	12.03
	Chapar (pt)	76.33	19.34	95.67	4.33	68.04	22.83	90.87	9.18	42.58	45.14	87.72	12.28
	Dhubri (pt)	80.86	11.23	92.09	7.90	73.28	14.82	88.10	11.90	65.16	15.54	80.70	19.30
	Dotoma	64.41	20.82	85.24	14.76	42.20	20.29	62.50	37.50	43.14	20.04	63.18	36.82
	Golokganj (pt)	75.66	22.09	97.75	2.25	53.14	28.25	81.39	18.61	52.37	31.12	83.49	16.51
	Gossaigaon (pt)	76.03	12.61	88.63	11.37	39.85	25.60	65.45	34.55	50.82	14.11	64.94	35.06
	Kokrajhar (pt)	59.80	17.11	76.91	23.09	39.62	19.16	58.78	41.22	38.09	11.36	49.45	50.55
	Overall	68.14	16.01	84.14	15.85	42.88	22.59	65.48	34.52	45.95	16.51	62.46	37.54
CHIRANG	Barnagar (pt)	88.40	8.34	96.75	3.25	75.09	12.22	87.31	12.69	48.80	32.24	81.04	18.96
	Bengtol	66.31	16.19	82.50	17.50	48.71	23.05	71.76	28.24	51.38	17.58	68.96	31.04
	Bijni (pt)	69.63	13.42	83.05	16.95	49.70	20.21	69.91	30.09	41.33	21.41	62.74	37.26
	Bongaigaon (pt)	67.76	18.58	86.35	13.65	17.65	13.78	31.43	68.57	16.38	13.07	29.44	70.56
	Kokrajhar (pt)	30.01	9.45	39.47	60.53	15.75	9.83	25.59	74.41	12.98	8.43	21.41	78.59
	Sidli (pt)	74.31	12.14	86.45	13.55	52.68	14.64	67.32	32.67	42.69	14.41	57.10	42.90
	Overall	68.95	13.34	82.29	17.71	49.07	18.10	67.17	32.82	41.43	18.17	59.59	40.40
BAKSA	Baganpara (pt)	75.11	13.92	89.03	10.97	53.87	20.47	74.34	25.66	36.56	22.74	59.30	40.70
	Bajali (pt)	83.33	8.53	91.86	8.14	68.15	10.79	78.94	21.06	51.66	25.18	76.84	23.15
	Barama (pt)	67.29	13.24	80.54	19.46	46.99	17.60	64.59	35.40	33.55	18.13	51.68	48.32
	Barnagar (pt)	78.12	15.96	94.08	5.92	41.26	19.39	60.65	39.35	34.18	24.07	58.25	41.75
	Baksa	65.71	12.53	78.24	21.76	49.94	20.20	70.15	29.85	31.96	20.53	52.50	47.50
	Ghograpara (pt)	50.09	41.71	91.80	8.20	50.47	12.07	62.54	37.46	32.78	37.28	70.06	29.94
	Goreswar (pt)	78.70	10.37	89.07	10.93	51.56	16.48	68.04	31.95	41.99	21.12	63.11	36.89
	Jalah (pt)	79.79	11.06	90.85	9.15	59.98	20.06	80.04	19.96	41.90	26.95	68.85	31.15
	Pathorighat (pt)	81.71	5.06	86.77	13.23	56.48	22.80	79.28	20.72	40.47	33.80	74.27	25.73
	Rangia (pt)	68.30	11.08	79.38	20.62	38.08	18.91	56.99	43.01	23.97	9.38	33.35	66.64
	Sarupeta (pt)	89.66	4.32	93.98	6.01	50.54	15.37	65.91	34.09	46.54	21.08	67.63	32.37
	Tamulpur	75.70	12.74	88.44	11.55	46.91	17.69	64.60	35.39	35.16	26.33	61.49	38.51
	Tihu (pt)	75.48	12.65	88.14	11.86	34.90	10.61	45.51	54.49	28.28	22.80	51.08	48.92
	Overall	74.76	12.73	87.48	12.51	49.49	18.27	67.77	32.23	36.70	23.25	59.96	40.04
UDALGURI	Dalgaon (pt)	79.76	9.86	89.62	10.38	49.61	18.60	68.21	31.79	37.98	30.95	68.94	31.06
	Dhekiajuli (pt)	83.13	9.71	92.85	7.15	53.85	24.72	78.57	21.42	66.33	21.64	87.97	12.03
	Harisinga	47.25	7.37	54.62	45.38	30.67	10.72	41.39	58.60	25.32	16.57	41.89	58.11
	Kalaigaon (pt)	77.24	9.91	87.16	12.84	58.27	15.25	73.52	26.48	47.72	20.22	67.94	32.06
	Khoirabari (pt)	78.59	11.52	90.12	9.88	57.22	14.74	71.96	28.04	45.73	19.18	64.91	35.09
	Mangaldai (pt)	90.70	3.72	94.42	5.58	73.96	5.95	79.91	20.09	45.30	40.08	85.39	14.61
	Mazbat	51.65	6.98	58.63	41.37	31.28	9.59	40.87	59.13	33.95	22.56	56.52	43.48
	Pathorighat (pt)	74.70	17.65	92.35	7.65	76.38	13.68	90.05	9.95	32.94	31.99	64.93	35.07
	Udalguri	72.60	13.88	86.48	13.52	46.92	19.64	66.57	33.43	39.37	23.49	62.87	37.13
	Overall	62.85	9.68	72.54	27.46	42.29	14.39	56.68	43.32	36.18	21.08	57.26	42.74
BTAD		68.53	12.72	81.25	18.75	45.60	18.46	64.06	35.93	39.72	20.12	59.84	40.16
ASSAM		55.86	9.92	65.77	34.23	39.11	13.25	52.36	47.64	33.93	15.42	49.35	50.65

***C-Cultivator, AL-Agricultural Labourer, AW- Agricultural Workers, NAW-Non Agricultural Workers.**

Source: (1971 and 2001 data is Recasting as per the 2011 Census boundary of BTAD), Primary Census Abstract, Census of India 1971, 2001 and 2011.

Appendix-6

Male-Female Occupational Composition at Circle Level in BTAD, 2011

District	Circles	Occupational Composition (in Percent)															
		Cultivator				Agricultural Labourer				Total Agricultural Workers				Non Agricultural Workers			
		M	F	Male-Female Gaps	DI	M	F	Male-Female Gaps	DI	M	F	Male-Female Gaps	DI	M	F	Male-Female Gaps	DI
Kokrajhar	Bagribari (pt)	54.73	55.22	-0.49	-0.01	16.04	26.29	-10.25	-0.53	70.77	81.51	-10.74	-0.14	29.23	18.49	10.74	0.41
	Bhawraguri	45.64	43.61	2.03	0.04	21.61	28.07	-6.46	-0.28	67.25	71.68	-4.43	-0.06	32.75	28.32	4.43	0.14
	Bilasipara (pt)	67.25	15.02	52.23	0.88	23.15	58.87	-35.72	-1.26	90.40	73.89	16.51	0.19	9.60	26.11	-16.51	-1.37
	Chapar (pt)	52.29	24.15	28.14	0.66	33.88	66.52	-32.64	-0.72	86.17	90.66	-4.49	-0.05	13.83	9.33	4.5	0.37
	Dhubri (pt)	67.62	60.17	7.45	0.11	13.15	20.4	-7.25	-0.47	80.77	80.56	0.21	0.00	19.23	19.43	-0.2	-0.01
	Dotoma	43.97	41.04	2.93	0.07	16.51	28.89	-12.38	-0.62	60.49	69.93	-9.44	-0.15	39.51	30.07	9.44	0.26
	Golokganj (pt)	59.85	27.61	32.24	0.61	23.44	56.56	-33.12	-1.06	83.29	84.17	-0.88	-0.01	16.71	15.83	0.88	0.05
	Gossaigaon (pt)	55.13	41.08	14.05	0.28	11.28	20.52	-9.24	-0.65	66.41	61.60	4.81	0.07	33.59	38.40	-4.81	-0.14
	Kokrajhar (pt)	40.03	34.42	5.61	0.15	7.51	18.63	-11.12	-0.98	47.54	53.05	-5.51	-0.11	52.46	46.95	5.51	0.11
	Overall	48.70	39.75	8.95	0.19	13.25	23.87	-10.62	-0.64	61.95	63.62	-1.67	-0.03	38.05	36.38	1.67	0.04
Chirang	Barnagar (pt)	54.62	40.66	13.96	0.29	28.03	38.13	-10.1	-0.31	82.65	78.79	3.86	0.05	17.35	21.21	-3.86	-0.20
	Bengtol	57.94	40.20	17.74	0.34	13.59	24.39	-10.8	-0.61	71.53	64.58	6.95	0.10	28.47	35.41	-6.94	-0.22
	Bijni (pt)	45.77	31.61	14.16	0.34	15.20	35.03	-19.83	-0.93	60.96	66.64	-5.68	-0.09	39.03	33.36	5.67	0.15
	Bongaigaon (pt)	16.90	15.02	1.88	0.11	11.60	16.85	-5.25	-0.40	28.50	31.87	-3.37	-0.11	71.50	68.13	3.37	0.05
	Kokrajhar (pt)	14.96	6.40	8.56	0.66	6.39	15.19	-8.8	-1.04	21.36	21.59	-0.23	-0.01	78.64	78.41	0.23	0.00
	Sidli (pt)	45.41	37.99	7.42	0.17	10.41	21.32	-10.91	-0.76	55.82	59.30	-3.48	-0.06	44.17	40.69	3.48	0.08
	Overall	45.03	34.31	10.72	0.26	13.23	27.92	-14.69	-0.81	58.26	62.22	-3.96	-0.07	41.73	37.77	3.96	0.10
Baksa	Baganpara (pt)	47.22	21.07	26.15	0.71	20.55	25.94	-5.39	-0.24	67.77	47.01	20.76	0.35	32.23	52.99	-20.76	-0.51
	Bajali (pt)	55.64	46.37	9.27	0.18	17.87	34.91	-17.04	-0.68	73.51	81.28	-7.77	-0.10	26.49	18.72	7.77	0.33
	Barama (pt)	40.50	20.84	19.66	0.58	14.23	25.24	-11.01	-0.61	54.74	46.08	8.66	0.18	45.26	53.92	-8.66	-0.18
	Barnagar (pt)	37.19	26.28	10.91	0.32	20.76	32.78	-12.02	-0.50	57.94	59.06	-1.12	-0.02	42.05	40.94	1.11	0.03
	Baksa	41.52	17.17	24.35	0.76	16.86	26.22	-9.36	-0.45	58.38	43.39	14.99	0.28	41.62	56.61	-14.99	-0.31
	Ghograpara (pt)	41.28	15.41	25.87	0.79	30.63	50.87	-20.24	-0.54	71.91	66.28	5.63	0.08	28.09	33.72	-5.63	-0.19
	Goreswar (pt)	49.41	23.87	25.54	0.61	16.94	31.32	-14.38	-0.68	66.36	55.19	11.17	0.18	33.64	44.81	-11.17	-0.30
	Jalah (pt)	49.83	30.61	19.22	0.46	20.22	36.53	-16.31	-0.60	70.06	67.14	2.92	0.04	29.94	32.86	-2.92	-0.09
	Pathorighat (pt)	46.86	26.31	20.55	0.51	25.81	51.51	-25.7	-0.76	72.66	77.82	-5.16	-0.07	27.33	22.18	5.15	0.20
	Rangia (pt)	27.38	6.74	20.64	0.86	8.23	15.19	-6.96	-0.74	35.61	21.93	13.68	0.41	64.38	78.07	-13.69	-0.20
	Sarupeta (pt)	51.97	36.25	15.72	0.34	18.31	26.34	-8.03	-0.38	70.28	62.59	7.69	0.11	29.71	37.41	-7.7	-0.24
	Tamulpur	43.21	19.99	23.22	0.66	20.56	37.2	-16.64	-0.63	63.77	57.19	6.58	0.11	36.23	42.81	-6.58	-0.17
	Tihu (pt)	35.93	9.72	26.21	0.93	18.06	34.31	-16.25	-0.71	53.99	44.03	9.96	0.19	46.01	55.97	-9.96	-0.20
	Overall	43.99	22.84	21.15	0.58	18.85	31.64	-12.79	-0.55	62.84	54.48	8.36	0.14	37.16	45.52	-8.36	-0.21
Udalguri	Dalgaon (pt)	44.90	24.67	20.23	0.53	26.95	38.66	-11.71	-0.38	71.85	63.33	8.52	0.12	28.14	36.67	-8.53	-0.27
	Dhekiajuli (pt)	71.00	37.65	33.35	0.50	19.10	37.25	-18.15	-0.84	90.10	74.90	15.2	0.17	9.90	25.10	-15.2	-1.26
	Harisinga	31.46	13.68	17.78	0.70	13.51	22.39	-8.88	-0.53	44.96	36.07	8.89	0.21	55.04	63.93	-8.89	-0.15
	Kalaigaon (pt)	53.24	36.62	16.62	0.35	12.52	35.69	-23.17	-1.14	65.76	72.31	-6.55	-0.10	34.24	27.69	6.55	0.20
	Khoirabari (pt)	53.82	27.71	26.11	0.57	15.80	26.71	-10.91	-0.57	69.62	54.42	15.2	0.23	30.37	45.58	-15.21	-0.43
	Mangaldai (pt)	57.45	15.55	41.9	0.92	30.19	64.32	-34.13	-0.85	87.64	79.87	7.77	0.09	12.36	20.13	-7.77	-0.53
	Mazbat	42.75	15.98	26.77	0.79	18.50	30.88	-12.38	-0.55	61.24	46.86	14.38	0.25	38.75	53.14	-14.39	-0.33
	Pathorighat (pt)	40.44	11.11	29.33	0.89	17.51	74.08	-56.57	-1.77	57.96	85.18	-27.22	-0.42	42.04	14.81	27.23	0.78
	Udalguri	45.43	27.35	18.08	0.46	19.67	31.08	-11.41	-0.48	65.10	58.42	6.68	0.11	34.89	41.57	-6.68	-0.18
	Overall	43.13	22.15	20.98	0.58	17.06	29.2	-12.14	-0.57	60.19	51.35	8.84	0.15	39.81	48.65	-8.84	-0.21
BTAD		45.20	28.59	16.61	0.42	16.00	28.49	-12.49	-0.62	61.20	57.08	4.12	0.07	38.80	42.92	-4.12	-0.10
ASSAM		36.29	28.06	8.23	0.24	13.22	20.89	-7.67	-0.50	49.51	48.95	0.56	0.01	50.49	51.05	-0.56	-0.01

Source: Primary Census Abstract, Census of India 2011.

Appendix-7

VILLAGE INFORMATION SCHEDULE

For Research Work on

EDUCATION, OCCUPATION AND HEALTH STATUS IN BODOLAND TERRITORIAL AREAS DISTRICT (BTAD), ASSAM: A SOCIO-SPATIAL ANALYSIS

Date of Survey……. Serial No……..

1. **Locational Details**:

(a) Village	
(b) Thana	
(c) C.D. Block	
(d) Revenue Circle	
(e) Village Panchayat	
(f) Distance to nearest town (in km.):	
(g) District Name and Distance to District Headquarters (in km)	

2. **Physical Background**:

(a)Area (in Hectares / sq. Km):									
(b)Terrain: (i) High land (ii) Low land (iii) built-up area									
(c) Water bodies	(1) Name of nearby river:								
	(2) Distance from village(in km):								
	(3) Whether there are the following at or near the village:								
		Streams	Beel	Pond	Reservoir	Tank	Canal	Water-logged Area	Marshy/Swampy areas
	Yes/ No								
	Number								
(d)Flood problem, if any: (i) Frequently inundated (ii) Occasionally inundated (iii)Free From									
(e)Vegetation	(1) Is there any forest nearby? (i) Yes (ii) No								
	(2) If yes, name of the forest:								
	(3) Distance from village(in km)								

3. **Demographic Background**:

(a)Total number of households:				
(b)Population	Male	Female		Total
(c)Social composition	General	ST	SC	OBC/MOBC
(d)Religious composition	Hindu	Muslim	Christian	Others(specify)

4. **Landuse Pattern**:

Area under different categories (in hectare)						
Basti land	Agricultural land	Wet land	Forest	Fallow land	Waste land	Open Space/Play ground

5. **Educational Facilities**:

Primary School		High School		High Madrasa		H.S. School		College	
Within the village	Outside with distance	Within the village	Outside with distance	Within the village	Outside with distance	Within the village	Outside with distance	Within the village	Outside with distance

6. **Medical Facilities**:

(a)Facilities available	Sub-centre	PHC	CHC	FRU	Pvt. Clinic &Nursing Home
(b)Distance to the nearest facility (in km)					
(c)Health provider in the village	Pvt. Doctor	Visiting Doctor (Pvt. /Govt.)	Dai	Village health guide/ ASAH	Mobile health unit
(d)Nearest Pharmacy (with distance):					
(e)Nearest hospital (with distance):					

7. Transport Facilities:

(a)Distance to nearest (in km)	Railway Station	National Highway	PWD Road	Others
(b)Road in village:	(i) Metalled		(ii) Unmetalled	
(c) Road Status:	(i) Motorable		(ii) Unmotorable	

8. **Infrastructural Facilities**:

(a)Water Supply	(i)Provided			(ii) Not provided	
	If provided, Sources:	Public hand pump	Public tap	Public well	Others
(b)Irrigation	(i)Provided			(ii) Not provided	
	If provided, Sources:	Canal irrigation	Pump irrigation		Others
(c)Electricity	(i)Provided		(ii) Not provided		
(d)Other public amenities	Bank	Post office	Electricity	Telephone office	Others
Numbers					
Distance to					

9. Other Facilities:

(a)Location of market with distance:			Daily	Weekly	Biweekly	Others(specify)
		Within				
		Outside				
(b)Others	Library	Anganwadi centre	Adult education centre	Fair price shop	Community centre	Others(specify)

10. Health Status:

(a) What are the two most common health problems in the village?

Children	Adult	
	Male	Female

(b) Is any epidemic prevailed in the village in last one/three year? (i) Yes (ii) No

(c) If yes, then what was the disease? (Tick wherever necessary)

Fever	Diahorrea	Dysentery	Cholera	Typhoid	Hepatitis B	Malaria	Japanese Encephalitis	Others (specify)

11. Is there any incidence of Witch Hunting in your Village/neighbouring village? If Yes, When:
How many people affected/ killed:
Causes:
Consequences:

12. Opinion regarding Witch Hunting in the Society:

Appendix-8

TOWN INFORMATION SCHEDULE

For Research Work on

EDUCATION, OCCUPATION AND HEALTH STATUS IN BODOLAND TERRITORIAL AREAS DISTRICT (BTAD), ASSAM: A SOCIO-SPATIAL ANALYSIS

Date of Survey…… Serial No……..

1. Locational Details:

(a)Town	
(b)Ward No.	
(c)District Name and Distance to District Headquarters (in km)	

2. Physical Background:

(a)Area (in Hectares/ sq. Km):									
(b)Terrain: (i) High land (ii) Low land (iii) built-up area									
(c) Water bodies	(i) Name of nearby river								
	(ii) Distance from town (in km):								
	(iii) Whether there are the following at or near the village:								
		Streams	Beel	Pond	Reservoir	Tank	Canal	Water-logged Area	Marshy/ Swampy areas
	Yes/ No								
	Number								

(d)Flood problem/water-logged, if any:	Frequently inundated	Occasionally inundated	Free from	
(e) Reasons for water-logged	Lower Area	Absence of pumping	Drainage problem	Others (specify)
(f)Problems arising due to water-logged	Occurrence of diseases	Contamination of water	Communicati on problem	Others (specify)

(g)Vegetation	(1) Is there any forest nearby? (i) Yes (ii) No
	(2) If yes, name of the forest:
	(3) Distance from town(in km)

3. Demographic Background:

(a)Total number of household:				
(b) Population	Male	Female		Total
(c)Social composition	General	ST	SC	OBC/MOBC
(d)Religious composition	Hindu	Muslim	Christian	Others

4. Landuse Pattern:

Area under different categories (in hectare)						
Built-up area	Agricultural land	Wet land	Fallow land	Forest	Waste land	Open Space/Playground

5. Educational Facilities:

Primary School	High School	High Madrasa	H.S. School	College	University

6. Medical Facilities:

(a)Facilities available	Civil Hospital	Sub-centre	PHC	CHC	FRU	Pvt. Clinic & Nursing Home

7. Transport Facilities:

(a) Public transport facilities: Adequate/Inadequate

(b) Intra city mode of transport: Adequate/Inadequate

(c) Modes of transport in the town area:

8. Infrastructural Facilities:

(a)Water Supply	(i)Provided (ii) Not provided						
	If provided, Sources:		Public tap	Private Tap	Public hand pump	Public well	Others (specify)
(b)Other public amenities	Bank	Library	Post office	Shopping malls	Cinema Hall	Community centre	Others (specify)
Numbers							
(c)Drainage system	(i) Yes (ii) No						

If no, why?	Remains choked	Poor maintenance	Bad Smell	Others (specify)

9. Health Status:

(a) What are the two most common health problems in the town?

Children	Adult	
	Male	Female

(b)Did any epidemic occur in the town in the last one/three year? (i) Yes (ii) No

(c) If yes, then what was the disease? (Tick wherever necessary)

Fever	Diahorrea	Dysentery	Cholera	Typhoid	Hepatitis B	Malaria	Japanese Encephalitis	Others (specify)

Appendix-9

HOUSEHOLD SURVEY SCHEDULE CUM QUESTIONNAIRE

For Research Work On

EDUCATION, OCCUPATION AND DEMOGRAPHIC CHARACTER AND SOCIO ECONOMIC WELL-BEING IN BODOLAND TERRITORIAL AREAS DISTRICT (BTAD), ASSAM

Date of Survey: Serial No:

1. Name of the village/ urban centre/Revenue Circle/ District:
2. Name of the family head:
3. Primary economic base of the family:
4. Socio-Cultural Background:

a) Religion: (i) Hindu (ii) Muslim (iii) Christian (iv) others

b) Language: (i) Mother tongue: (ii) Language spoken at home:
(iii)Other languages known:

c) Whether: (i) GEN (ii) ST (iii) SC (iv) OBC (v) Others

d) Community:

e) Origin of the family: (i) Indigenous (ii) Inmigrant (iii)Immigrant

f) If Inmigrant/Immigrant, place of origin……When settled…….. and Why……, Settled Permanently/Temporarily ……..

g) Dressing habit:

a) Male: at home…….outside home…….

b) Females: at home……outside home…….

5. Family Background:

a) Family Members: Total: …… Male: ……. Female: ……

b) Family Type : (i) Nuclear (ii) Joint (iii) Extended

c) Family Structure:

Sl. No.	**Relation with the Family Head**	**Age**	**Sex**	**Marital Status**	**Age at marriage**	**Educational Qualification**	**Medium of Schooling**	**Distance to School/ Workplace (in Km)**	**Occupation**		**Remark**
									Main	Subsidiary	
1	Self										
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											

6. Demographic characteristics of Married couples/ Widows in the family:

Married couples/ Widows/widower (with age of female above 45)	Present Age		Educational Level		No. of children alive		No. of children died	
	Male	Female	Male	Female	Male	Female	Male	Female
(i) (ii) (iii)								

7. How do the children go to school? (on foot/ rickshaw/cycle/car/bus)

8. Who accompanies them? Alone/ Parents/ care takers/ others

9. (a) Maximum educational level desired for children:

	Below HSLC	HSLC	HS	Grad.	Post Grad.	Technical/Vocational Course(Specify)	No Bar
Male							
Female							

(b) Which category of school do you prefer for the children in the family?

Type of School	State Board	CBSE Board	ICSE Board	No Specification
Public School				
Private School				

10. Housing Characteristics:

(a) Type of house: Mud hut/ A.T. Kutcha/ A.T. Pucca / AT Semi-Pucca/ RCC
(b) Size of house: Very small (1room)/Small (2-3 rooms)/Medium (4-5) / Big (6) / very big (7 and above)
(c) When is the house constructed?
(d) Toilet: Sanitary / Kutcha / Open/ others
(e) Distance of toilet: attached/ Separate
(f) Kitchen: Attached/ Separate /Modern/ Kutcha / Others
(g) Method of disposal of waste and garbage :(i)Disposed within premise (ii) Disposed outside premise
(h) Household sewage water is (i) Clearly drained off and (ii) Stagnated nearby
(i) Types of Bathroom: Modern/Pucca / Kutcha / Open/ others
(j) Drainage: closed drainage/ open drainage/ no drainage
(k) Drinking Water:

(i) Source	Hand pump in residence	Electric water pump	public hand pump	Well in residence	public well	public tap	pond in residence	public pond	River	Tank

(ii) Purified (iii) Unpurified
(iv) Type of water storage (a) vessels, (b) covered cisterns, (c) Uncovered

l) Sources of light: (i) Electricity (ii) Kerosene (iii) others
m) Cooking Fuel: (i) Fire wood (ii) L.P.G. (iii) others
n) Cooked food: Covered/ Uncovered/Eaten same day/Eaten next day

11. Food Habit:

a) Whether the family is (i) Vegetarian (ii) Non vegetarian.
b) Main Food items at Home:
c) Food items outside: Fast food /Packaged food and beverages/Snacks/Sweets

and Chocolates/others

d) Do you have any knowledge about the balance diet? Yes/ No

e) Besides the main food, do your family member use any other food supplement like protein, calcium etc. If yes, how often: Very Often/Often/Sometimes/Rarely/ Not at all

f) Is consumption of Tobacco/ betel nut / gutkha etc. part of your food habit?
If yes, how often: Very Often/Often/Sometimes/Rarely/ Not at all

g) Does any member of the family consume liquor? (i) Yes (ii) No
If yes, then Source and type:

No. of members consuming liquor	Regularly / Occasionally

12. Landownership: (in Bigha / Katha)
(i)Total land in Possession …… (ii) Land leased in……. (iii) Land leased out……..

13. Landuse: (in Bigha / Katha)

(i)Basti land	(ii) Agricultural land	(iii) others (specify)
(iv) Distance to the Agricultural field (in Km):		

14. Income pattern of the family:

Earning members of the family	Age	Sex	Education	Main Source of Income	Total Monthly Income (Rs)	
					Main Occupation	Subsidiary
1. 2. 3.						

15. Monthly expenditure pattern of the family (Rs. in Thousands)

	Food	Dress materials	Festival &Rituals	Agricultural activities	Education	Medical Treatment	Maintenance	others
Expenditure								

16. Household assets, amenities and facilities available: (Tick wherever necessary)

a) Radio / T.V./ Cable Connection / DTH /Computer/ Laptop/ Internet /Inverter
b) Newspaper / Magazine / Telephone/ Mobile/Electricity
c) Bicycle / Scooter / Motor Cycle / Car / Bus / Truck / Tractor
d) Water Filter / Refrigerator / Mixer Grinder
e) Washing Machine / Vacuum Cleaner / Microwave Oven
f) Sewing Machine / Weaving Set
g) Bank Account / Insurance / Medi-claim Policy

17. Fertility and Mortality pattern in the family (from 2009 onwards)

	Total	Male	Female
Birth			
Death			

18. Causes of Death

Sl. No.	Sex	Age at death	Causes of death	Nature of treatment

19. Child mortality case history (Under 5 years)

Sl. No.	Sex	Age at death	Causes of death	Nature of treatment

20. Common Diseases in the family:

Diseases	Children	Adult	
		Male	Female
i) Cold, cough, fever			
ii) Stomach problem			
iii) Chest problem			
iv) Diabetes			
v) Blood pressure			
vi) Heart problem			
vii) Viral fever			
Viii) Arthritis			
ix) Dental problem			
x) Any others (specify)			

21. Health problems faced by the women in the family:
(a) General health problem:
(b) Maternity problem:

22. Child bearing note: (last baby)
a) Delivered by whom:
b) Place of delivery (at home / at govt. hospital/ P.H.C/ Private hospitals/ others)
c) Total amount spent:

23. Is there any disable person or child in your family? Yes/ No If yes, then

No. of persons	Type of disability	Cause of disability	Nature of treatment	Status after treatment

24. Does any member of the family at present is suffering from any diseases? Yes/ No
If yes,

Name of the patient:
Age:
Sex:
Type of Diseases
Period of Suffering
Did he/she get a treatment (Yes/No)
If Yes from where?
What is the result after treatment?
If no treatment is taken, give reasons: a) Medical treatment is expensive b) These minor diseases do not need for professional assistance c) Can't find time or leave from work d) Will miss a day's wage, if I go to a doctor e) Others (specify)

25. Health Awareness:
(a) Mode of Medicine used: (i) Use non-prescribed drugs (ii) Use prescribed drugs (iii) Use homemade medicine (iv) Quacks

(b) What type of medicine you prefer? Home-made medicine / Ayurvedic medicine / Homeo medicine/ Allopathic medicine?
(c) Have you or your family member ever participated in any health awareness programme? If yes, how many times and where? .....
(d) Discussion of any health problem within the family: Never / Rarely / Regularly/ Frequently
(e) Discussion about diseases with the neighbours: Never / Rarely / Regularly/ Frequently
(f) Did you ever avail following free health services from the nearest health centers for any disease? (a)Medicines, (b) Ambulance service, (c) Free health checkup, (d) Blood tests, (e) Urine/ Stool test, (f) others.
(g) Is your family availing any govt. medical scheme? If yes, what type of scheme?
(h) Have you adopted any family planning measures? Give details.
(i) Have any female member of the family used vitamins, iron and folic acid tablets? Yes/No
If yes, how often: Very Often/Often/Sometimes/Rarely/Never
(j) Is childlessness prevalent in your family? Yes/No
If yes, then why?
Has any measure been adopted for treatment and of what type?
(k) Number of children desired by respondents:

Gender Preference	First Child	Second Child	Third Child	More than three
Male				
Female				
No gender specific				

26. Have you heard about diseases like Malaria/ Dengue/ Filaria/Japanese Encephalitis/ HIV/ Cancer/etc? If yes, from where did you hear about these?
a) Radio/T.V.
b) Newspaper/ Magazines/Books
c) Posters/ Pamphlets
d) Doctor/ Health workers
e) Meetings/ awareness programme
f) Relatives/ Friends
g) Others

27. If any member of house is sick, where is he/ she treated?
a) Govt. Hospital / Govt. Dispensaries /CHCs/ PHCs/ Sub Centres / Pvt. Hospitals /Clinics /Pvt. Doctors/ Homeopathy/
b) Traditional healer/ Dai/ Self medication.
c) In the case of any emergency, what is done:

28. Usually at what stage of the illness you go for treatment?
a) Immediately
b) Wait and see the severity of illness
c) When it starts affecting day to day work
d) When it incapacitates you
e) Others (specify)

29. Distance to the nearest health care center (in Km)?

30. Source of Finance for medical treatment: Personal Savings/ Indebtedness/ Assistance from others/ free treatment/ Medical Insurance/ Others (specify).

31. How do you feel about the following health services of the nearest govt. health centers?
a) Service of doctors (very good/ good/ average/ poor/ very poor)
b) Nurses and other medical staffs (very good/ good/ average/ poor/ very poor)
c) Emergency service (very good/ good/ average/ poor/ very poor)
d) Other allied services (very good/ good/ average/ poor/ very poor)

32. At what time your family members usually sleep at night and wake up in the morning?

	Girl Child	Boy Child	Female Adult	Male Adult
Sleep				
Wake-up				

33. How do your family members utilize their early morning hours?
    Female Adult: Male Adult:
    Girl Child: Boy Child:

34. How your family members utilize the Leisure time?
    Children: Playing/ TV/ Visiting Places/working
    Adult: Playing/ TV/ Visiting Places/working/ Household Chores /social works/ Marketing/others

35. Duration of work/ leisure among the family members (per day in hours):

Work/Leisure	Girl Child	Boy Child	Female Adults	Male Adults
Study				
Service/Business				
Household Chores				
Playground/Parks				
Cinema/TV				
Travelling				
Cultural Centre				
Any Other				

36. Female Status:
    a) Activities of woman:
       At home: Domestic work/ livestock rearing/ weaving/ others (specify)
       Outside home: Service/ Agriculture/ Daily labour/ others (specify)
    b) Do the women in the family take part in decision making in the family?
    c) Is a woman in the family engaged in any public/ private sector job?
       If yes, how are household affairs including child care managed?
    d) Whether there is any savings in the name of women of the family in any bank/post office?

37. Do you have any servant for?
    a) Household work (b) Cultivation (c) Other works

38. Has there been any incidence of Witch Hunting in your family? If Yes, When:
    No. of members affected/ killed:
    Causes:
    Consequences:

39. Frequency of cleaning:

	Daily	Alternate day	Weekly	Fortnightly	Monthly
Drinking water storage					
Water storage					
Kitchens					
Bathrooms					
Toilets					
Drainage					
Lawns / Garden					

40. Use of Hygiene control products
    (i) Bath Soap/ Shampoo/ Detergents/ Toilet cleaners/
    (ii) Toothpaste/Toothbrush/ Cream / lotion / oil / Nail cutter.

41. Overall status of living: Very Healthy/Healthy/Moderately Healthy/Low/Very Low

Signature of the Surveyor

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STATUS OF HEALTH INFRASTRUCTURE AND AWARENESS IN BODOLAND TERRITORIAL AREAS DISTRICT (BTAD), ASSAM

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Abstract : Human health constitutes the backbone of the patterns and processes of socio-economic development of an area. The status of health in an area is largely dependent on the physical health infrastructure and its functioning, and the services provided to the people. However, the nature/degree of availability, distribution, accessibility, quality and utilization of health care services varies spatially. The utilization of available health care services also varies with respect to level of health awareness and treatment seeking behaviour among the people, and also in terms of social inequality, distance and affordability in most parts of India. This is no less significant in the state of Assam, more particularly in its BTAD inhabited by diverse population groups including the Bodos. In view of such a situation, the overall health condition has still been quite discouraging among most of the people in the region. An attempt is made in this paper to understand the spatial pattern of health care infrastructure and prevailing variation in the level of health awareness among different groups of people in BTAD based on both primary and secondary data.

Key words: BTAD, health infrastructure, health awareness, population groups, health care services.

Introduction

Human health constitutes one of the most important factors determining pattern and process of socio-economic development of an area. The status of health in an area is largely dependent on the physical health infrastructure and its functioning, and the services provided to the people. Health care infrastructure acts as a means for achieving better health outcomes (Kwon, 2003). It acts as the underlying base or foundation for health system, providing basic facilities and services needed for the better functioning of the society. Health care, a multi-dimensional complex system, includes the interaction between various aspects like disease causing agents, availability and accessibility of health care providers and their services, management strategies and govt. policies. However, the degree of availability, accessibility and utilization of health care services and the nature of their distribution and quality vary spatially. The pattern of utilization of health care services also varies with respect to health awareness level and treatment seeking behaviour of the population including the distance and affordability. With this background an attempt is made in this paper to understand the spatial pattern of health care infrastructure in the BTAD and to examine the prevailing variation in the level of health awareness among its different groups of people.

Data Base and Methodology

The data necessary for the study have been obtained from both primary and secondary sources. The basic framework of the study is derived by consulting relevant literature from the discipline of geography and health sciences. The secondary data relating to the availability of public health institutions and their functioning, health care resources along with the manpower, etc. have been obtained from the Directorate of Health Services, Assam; National Health Mission; National Rural Health Mission (district level), etc. The primary data for the study have been collected through well-designed household survey schedule-cum-questionnaire through stratified random sampling technique on economic ground. The sample villages have been selected in consideration of dominant population groups of the district. Apart from twenty sample villages, two urban centers have been selected purposively to depict both rural and urban scenario of the health awareness among the major population groups in the study area. The care has also been taken while drawing the sample so that it is well representative of the area and population. 20 per cent of sample households subject to a minimum of 30 households from each selected village have been considered and 80 for each of the towns. The data so collected through both secondary and primary sources have been analysed with the help of meaningful statistical techniques ranging from simple ratio to complex Principal Component Analysis to find out the level of health care services and health awareness level in BTAD region. The Location Quotient technique is specifically applied to understand the degree of relative concentration of health care services in BTAD. Besides, the availability of hospital and health centres in the region is calculated on the basis of varying weight given to different categories of health institutions.

Study Area

Located in the north bank part of the Brahmaputra valley and covering an area of 9,688 km^2, the Bodoland Territorial Areas District (BTAD) of Assam is the gateway to the north-eastern region of India. Administratively it consists of four districts, viz. Kokrajhar, Chirang, Baksa and Udalguri. It has been further subdivided into 10 civil sub-divisions and 37 revenue circles, some of which are partly in BTAD area and partly outside. Geographically, it is located between 26° 7'12" N to 26° 47' 50" N latitude and 89° 47' 40" E to 92° 18' 30" E longitude. The northern boundary of the region is formed

by the foothills of Bhutan and Arunachal Himalayas, east by Sonitpur district, west by West Bengal and the south by Dhubri, Bongaigaon, Barpeta, Nalbari, Kamrup and Darrang districts of Assam (Fig. 1). It has 3,024 villages covering an area of 9643.89 km² and 12 towns having an area of 44.11 km² (2011 Census).

As per 2011 Census, the total population of BTAD is 3,151,047. Its population density is 325 per sq. km. as against the state average of 398 per sq. km. Of its total population, 33.50 per cent is scheduled tribes (mostly Boros). A very small proportion of its population lives in the urban areas (4.44 per cent) as against state's 14.09 per cent. Although the area is Boro dominant, it is inhabited by people of diverse ethnic and religious groups in varying proportions. At present Kokrajhar serves as the headquarters of BTAD. It is an autonomous administrative unit constituted under the Sixth Schedule of the Constitution of India which was created in 2003 by curving out some area of eight districts of Assam, viz. Kokrajhar, Dhubri, Bongaigaon, Barpeta, Nalbari, Kamrup, Darang and Sonitpur within the state of Assam.

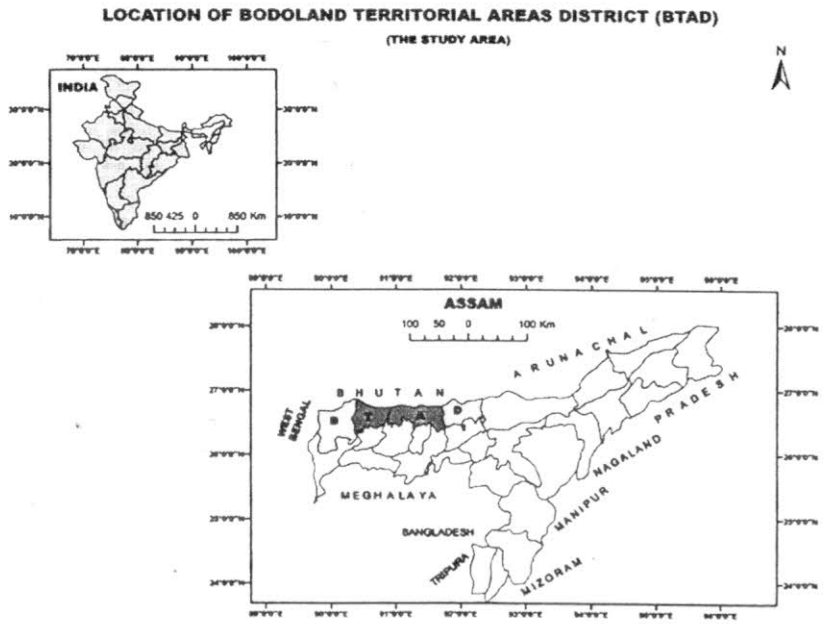

Fig. 1

Analysis and Discussion

Growth of Health Care Services

Health as the wealth for all is one of the basic rights of every individual in the country. As per the Constitution of India, providing good health to the people becomes one of the primary duties of all state governments. Thus, it makes every state responsible for improvement of public health sector for the development of the society. The purpose of health care services is to improve the health status of the population and deliver the health care services (Dutta and Bawari, 2007). So far the growth of public sector health institutions in BTAD is concerned, most of the specialized health institutions are functional in recent times. Up to 1975 the entire BTAD region had only 1 Civil Hospital (CH) in Kokrajhar district and 2 Community Health Centres (CHC) in the name of Dotoma CHC and Barama CHC in Kokrajhar and Baksa districts to fulfill the health needs of the people. Consequently, 1 sub divisional civil hospital in Gossaigaon town of Kokrajhar district and 4 CHC, namely Kachugaon CHC in Korajhar, Khoirabari CHC and Tangla CHC in Udalguri and Bhetagaon CHC in Chirang were established during the period 1975-1995, while during the period 1995-2005 only Jalah CHC in Baksa district was established. However, it is quite interesting to note that 3 Civil Hospitals in other three district headquarters, viz. Kajalgaon, Mushalpur and Udalguri have come into existence after the formation of National Rural Health Mission in the year 2005 (Table 1). Besides, 7 CHCs have been established in different places of BTAD, viz. Balajan CHC and Bashbari CHC in Kokrajhar district, Orang CHC in Udalguri district, Bengtol CHC and Subhaijhar CHC in Chirang district, and Goreswar CHC and Tamulpur CHC in Baksa district. In this way the number of major health institutions in the BTAD has increased from only 3 in 1975 to 19 in 2015 (Fig. 2). Moreover, there are 132 Primary Health Centres (PHC) and 549 Sub-Centres (SC) in the BTAD to provide basic health needs to the people covering most parts of the region.

Table 1: Growth of Major Health Institutions in BTAD, 2014-15

Time Period	No. of Health Institutions			Total Number of Health Institutions
	CH	SDCH	CHC	
Upto 1975	1	0	2	3
1975-1995	0	1	4	5
1995-2005	0	0	1	1
2005-2015	3	0	7	10
Total up to 2015	4	1	14	19

Source: Calculated from Assam Rural Health Survey Factsheet, National Health Mission, 2014-2015.

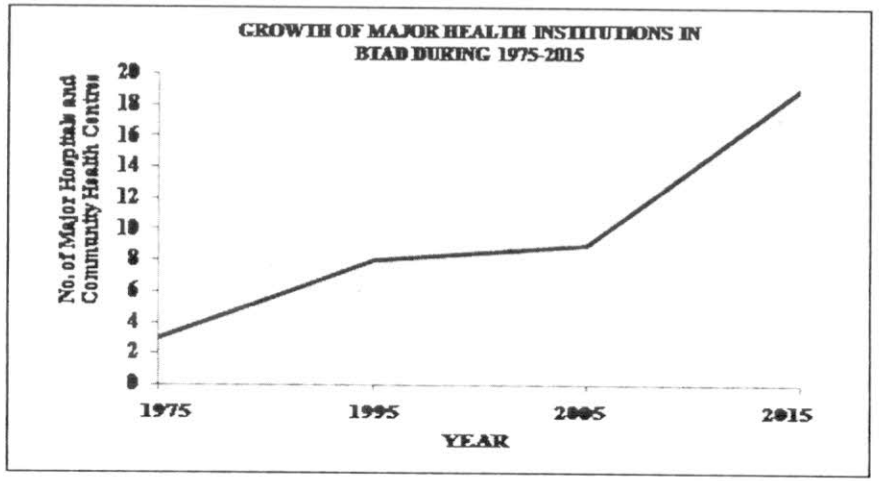

Fig. 2

Spatial Pattern of Health Care Services

Like the other parts of the state, health care services in BTAD region is provided by both public and private sectors. Both the public and private sector health care services in the region are largely concentrated in the urban areas or in district headquarters (Bhandari and Dutta, 2007).

For the purpose of providing quality health care services in every district, some larger units of health centres called Civil Hospitals (CH) are established in each district headquarters and some more number of medium category health centres called Cummunity Health Centres (CHC) in different places of each district in the region (Fig. 3). Apart from this, there is also one Sub-divisional Civil Hospital (SDCH) only in Kokrajhar district. The health care services in the rural area are catered by the three tire primary health care systems. The entire primary health care system in the region has been divided into 15 Block Primary Health Centres (BPHC) (Fig. 4). Each BPHC has a number of Primary Health Centres (PHC), Mini Primary Health Centres (MPHC), Secondary Health Care (*SHC*) and State Dispensaries (SD) manned by doctors and paramedical staffs. Altogether fourteen community health centres (CHC) in the region, each being equipped with 30 beds, are distributed in the thirteen BPHC. Apart from the facilities provided by the public health system, there are three Polyclinics located in Kokrajhar town, Udalguri town and Tangla town; one Nursing Home in Kajalgaon; and three Diagnostic Centres in the entire region under private sector.

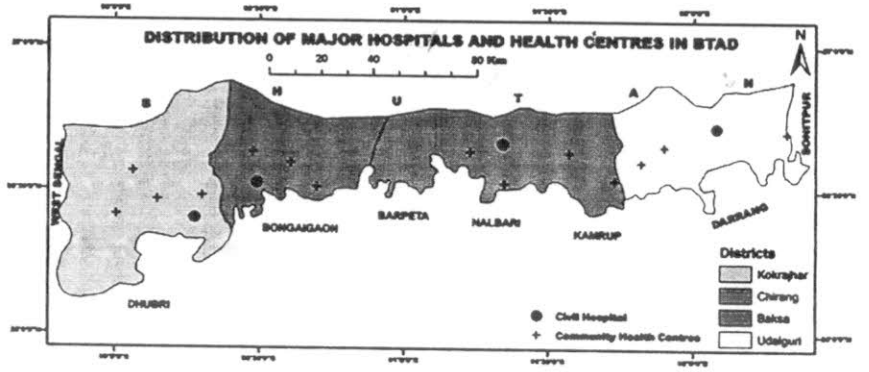

Fig. 3

Health care services and their delivery are largely dependent on the number of hospitals and health centres; medical facilities like number of physicians or specialist doctors, nurses and other paramedical staff and hospital beds; whether functioning as per IPHS norms, FRU and 24x7 service; availability and linkage of blood storage facility, availability of round the clock delivery services (normal and assisted deliveries), and availability of emergency obstetric services including surgical intervention, etc. In order to understand whether there exists equitable distribution of medical resources throughout the region, Location Quotient (L.Q.) technique is applied. The analysis reveals that health care services in BTAD are quite unevenly distributed. It is found to be highly concentrated in Kokrajhar district (1.19), followed by moderate concentration in Chirang district (1.01) and low concentration in the districts of Udalguri (0.76) and Baksa (1) (Table 2).

Availability of Health Care Services

The number of hospitals and other health centres in an area, and facilities available there are largely indicative of the prevailing physical well-being of population in the area. So far availability of health care facilities in the hospitals and other health centres of BTAD is concerned, Kokrajhar district witnesses the highest position, followed by Baksa district, while the lowest in Udalguri and Chirang districts (Table 3). But the availability of health care facilities will not serve the purpose for improvement of physical well-being of people, unless the facilities are properly delivered to the needy people in the area concerned.

The health care delivery system is determined by availability and accessibility of the health services. In order to measure the spatial variation in the degree of availability health care facilities, proportions of population and medical resources in each district have been found out. These figures

Table 2: Concentration of Health Care Services in BTAD, 2014

Districts	Number of Health Care Services* to Per One Hundred Hospitals and Health Centres in district (Xj)	Number of Health Care Services* to Per One Hundred Hospitals and Health Centres in BTAD (k)	Location Quotient (LQ= Xj/k)
Kokrajhar	833.65	700.00	1.19
Chirang	708.93		1.01
Baksa	701.49		1.00
Udalguri	530.46		0.76

* **Health Care Services include:** Functioning as per IPHS norms, Whether Functiong as FRU, Whether Functiong as 24X 7 , Availability of Blood Storage / Linkage facility, Availability of Round the clock delivery, Availability of Emergency Obstetric services including surgical intervention, Laboratory, operation theatre, labor room, new born care corner, quarter for doctors, referal transport, Medical and paramedical Stuffs like Doctors as specialists, general duty, AYUS, Suff Nurse, Pharmacists, different category laboratoryTechnicians, OT assistant, rural health practicioner, laboratory technician, pharmacist, ANM, MPW, etc.

Source: Calculated from Assam Rural Health Survey Factsheet, National Health Mission, 2014.

Table 3: Availability of Hospitals and Health Centers and the Overall Weighted Score in BTAD, 2014-2015

District	No. of Hospitals and Health Centers				Overall Weighted Score of Hospital and Health Centre Facility
	CH/ SDCH	CHC	PHC	SC	
Kokrajhar	2	4	44	161	4.69
Chirang	1	3	23	85	2.65
Baksa	1	4	39	157	3.81
Udalguri	1	3	24	146	3.08
BTAD	**5**	**14**	**130**	**549**	**14.23**

Weightage for different categories of Hospitals and Health Centres: CH/SDCH=139.6, CHC=49.86, PHC=5.37, SC=1.27.

Source: Calculated based on data from Assam Rural Health Survey Factsheet, National Health Mission, 2014-2015.

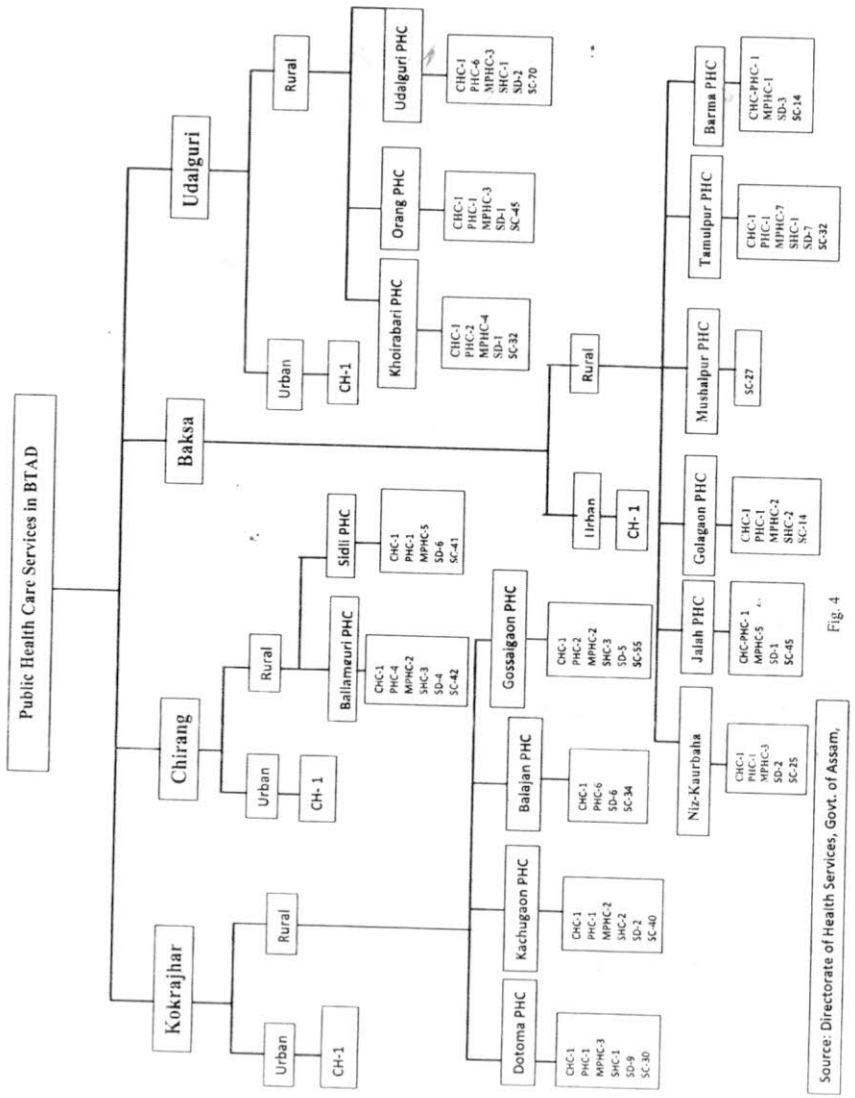

Fig. 4

would depict the relative availability of health care facilities in relation to the proportion of population of a district. It has been observed that among all the districts of BTAD, three districts excepting Kokrajhar district have comparatively less proportion of medical resources in comparison to the population (Table 4). However, this phenomenon of availability of health care facilities may be better understood from the data on health care facilities per lakh of population in each district. It is observed that the availability of physician and paramedical staffs is comparatively higher in the Chirang district than the other districts of BTAD (Table 5). However, the proportions of availability of DH/SDCH, PHC and SC and hospital bed have been considerably high in Kokrajhar district. In fact, the actual degree of availability of any health care facility is related to the district's population size. Accordingly, the districts of Kokrajhar and Chirang are better placed in respect of availability of health care facilities in BTAD.

Table 4: Availability of Medical Resources in Relation to Population, 2014

Districts	Percentage distribution of population	Percentage distribution of medical resources*
Kokrajhar	28.15	36.00
Chirang	15.30	16.25
Baksa	30.15	28.86
Udalguri	26.39	18.89
BTAD	**100**	**100**

* **Medical Resources include:** Functioning as per IPHS norms, Whether Functiong as FRU, Whether Functiong as 24X 7 , Availability of Blood Storage / Linkage facility, Availability of Round the clock delivery, Availability of Emergency Obstetric services including surgical intervention, Laboratory, operation theatre, labor room, new born care corner, quarter for doctors, referal transport, Medical and paramedical Stuffs like Doctors as specialists, general duty, AYUS, Suff Nurse, Pharmacists, different category laboratoryTechnicians, OT assistant, rural health practicioner, laboratory technician, pharmacist, ANM, MPW, etc.

Source: Directorate of National Health Mission, Govt. of India, 2014 and Census of India, PCA 2011, Assam.

Functionality of Health Facilities of Public Health Institutions in BTAD

The health condition of the people of a nation largely depends on an effective and well developed health-care system (Saikia and Das, 2014). The accessibility and utilization of a particular health care institution largely depends on the functionality of the various basic health facilities like operation theatre, labor room, stabilization of new born, new born care corner, X-Ray machine, Ultrasonography machine, etc. of the institutions. However, it is quite discouraging to mention that despite being the first contact point between the rural people and health care services, most of the CHC and PHCs of the region do not have either these facilities or non-functional (Table 6 and Table 7).

Table 5: Availability of Health Care Facilities* per lakh of Population in BTAD, 2014

Districts	Health care facilities (No. per lakh of population)						
	Physician	Paramedical Staff	DH/ SDCH	CHC	PHC	SC	Bed
Kokrajhar	10.82	39.79	0.22	0.45	4.96	18.15	75.86
Chirang	14.72	46.04	0.21	0.62	4.77	17.63	44.38
Baksa	14.52	33.36	0.10	0.42	4.10	16.52	28.73
Udalguri	9.02	19.36	0.12	0.36	2.88	17.55	30.18
BTAD	12.06	33.42	0.16	0.44	4.12	17.42	44.78

***Health care Facilities include: No of** Physician, Paramedical Staff, DH/SDCH, CHC, PHC, SC and Hospital Beds.

Source: Directorate of National Health Mission, Govt. of India, 2014 and Census of India, PCA 2011 volume.

Level of Health Care Services in terms of availability and functionality of different facilities in BTAD

The level of overall development of health care services in the regionhas also been analysed on the basis of health services indicators like number of health centres per lakh of population, percentage of health centres functioning 24*7, percentage of health institutions having blood storage facility, availability of emergency obstetric services including surgical intervention, number of hospital beds per lakh of population, percentage of specialist doctors, percentage of casual duty doctors, percentage of Ayur and Homeo doctors, number of nurse per lakh of population, technician per lakh of population, pharmacists per lakh of population, and other workers per lakh of population to determine the status of health care services in the region with the help of complex Principal Component Analysis technique.

The level of health care services in the region shows the actual status of health care services in the BTAD region. Among all the districts of BTAD, Kokrajhar, with

Table 6: Functionality of Some Basic Health Facilities of CHCs in BTAD, 2014

Services	Status of Availability and Functionality	Percentage of CHCs having basic health services			
		Districts			
		Kokrajhar	Chirang	Baksa	Udalguri
Laboratory	Both available and functioning	68.18	95.65	82.93	83.33
	Available but not functioning	2.27	4.35	4.88	4.17
	Not available	29.54	0	12.19	12.50
Operation Theatre	Both available and functioning	0	0	0	0
	Available but not functioning	2.27	0	7.32	0
	Not available	97.73	100	92.68	100
Labor Room	Both available and functioning	90.91	69.56	73.17	83.33
	Available but not functioning	0	17.39	9.76	0
	Not available	9.09	13.04	17.07	12.50
New Born care corner,	Both available and functioning	50	65.22	51.22	66.67
	Available but not functioning	27.27	4.35	14.63	0
	Not available	22.73	30.43	34.15	33.33

Source: Calculated from Assam Rural Health Survey Factsheet, National Health Mission, 2014.

Table 7: Functionality of Some Basic Health Facilities of PHCs in BTAD, 2014

Services	Status of Availability and Functionality	Percentage of PHCs having basic health services			
		Districts			
		Kokrajhar	Chirang	Baksa	Udalguri
Laboratory	Both available and functioning	68.18	95.65	82.93	83.33
	Available but not functioning	2.27	4.35	4.88	4.17
	Not available	29.54	0	12.19	12.50
Operation Theatre	Both available and functioning	0	0	0	0
	Available but not functioning	2.27	0	7.32	0
	Not available	97.73	100	92.68	100
Labor Room	Both available and functioning	90.91	69.56	73.17	83.33
	Available but not functioning	0	17.39	9.76	0
	Not available	9.09	13.04	17.07	12.50
New Born care corner	Both available and functioning	50	65.22	51.22	66.67
	Available but not functioning	27.27	4.35	14.63	0
	Not available	22.73	30.43	34.15	33.33

Source: Calculated from Assam Rural Health Survey Factsheet, National Health Mission, 2014.

score of 9.2, occupies a very high position, distantly followed by Chirang and Baksa, while Udalguri, with score of -7.88, occupies a discouragingly low position (Table 8 and Fig. 4).

Intercommunity Variation of Health Care Awareness in BTAD

Like the other parts of the country, lack of health care awareness among the people becomes the biggest concern for this part of the state. The level of health care awareness depends on a large number of factors along with the level of educational attainment and prevailing practice of some tradition and customs. In this respect, there exists a very high positive relationship between the literacy rate and level of health care awareness (r_1 = +0.81) in the region (Table 9). Similarly, there also exists a very strong positive relationship between the educational attainment of HSLC and above and level of health care awareness (r_2 = + 0.90) in BTAD (Table 9). Hence, it proves that the degree of health awareness among the people of any area depends on their educational level.

It is quite surprising to know that some of the communities and households still practice quack, etc. to get relief from some diseases. However, a number of indicators like percentage of households having sanitary toilet, percentage of households sewage disposal system, percentage of households having closed drainage, percentage of households using purified drinking water, percentage of households using covered cistern water storage, percentage of households with covered cooked food, percentage of households with knowledge about balanced diet, percentage of households with using food supplements, percentage of households with consumption of tobacco, betelnut, etc., percentage of households with consumption of liquor, percentage of households using prescribed medicines, percentage of households with practice of quack for treatment of diseases, percentage of households with participation in health awareness programme, percentage of households with practice of family planning, percentage of households using of vitamin, iron, calcium tablets, etc., percentage of households with awareness about common communicable diseases, and percentage of households going for immediate consultation with doctor for any kind of health problem, etc are considered to find out the intercommunity variation of health awareness in the region. The study reveals that among all the communities considered, the mixed community in urban areas occupies the most encouraging position in respect of the level of health awareness, followed by the non-tribal Assamese and the Bodos, while the indigenous Muslims, non-indigenous Muslims and Nepalese occupy a very dismaying position (Table 9).

Table 8: District-wise Level of Health Care Services in BTAD, 2014

Districts	PCA Composite Score
Kokrajhar	9.20
Chirang	-0.41
Baksa	-1.69
Udalguri	-7.88

Source: Calculated from Assam Rural Health Survey Factsheet, National Health Mission, 2014.

Conclusion

The foregoing discussion reveals that although there exists considerable number of health care institutions in the BTAD region, their functionality and implementation are not encouraging in most of the health centres. Moreover, the health centres with specialized

Table 9: Intercommunity variation of literacy rate and level of Health Awareness in BTAD, 2013-2015

Communities	Literacy Rate (in percent)	Educational attainment HSLC and Above (in Percent)	PCA Values of Health Awareness Level	Correlation Coefficient between Literacy and Health Awareness (r_1)	Correlation Coefficient between Educational Level and Health Awareness (r_2)
Bodo	81.29	42.34	3.16	+0.81	+0.90
Non-Tribal Assamese	88.47	35.68	13.60		
Bengali	73.74	20.96	-6.00		
Tea Tribe	57.48	13.65	-2.03		
Rajbongshi	79.67	18.39	-2.65		
Nepali	63.48	11.15	-9.35		
Non-Indigenous Muslims	67.60	16.96	-8.88		
Indigenous Muslims	72.22	19.86	-10.65		
Mixed Community (in Urban Centres)	93.53	64.25	23.91		

Source: Primary Survey, 2013-2015.

facilities and services are mainly concentrated in the district health centres. The study also reflects the unequal distribution of medical resources throughout the BTAD region. Apart from this, round the clock availability of doctors and paramedical staffs in all the health institutions is one of the question marks among the people in the region. As influenced by low level of literacy rate and educational attainment, the consciousness about the health and health care reveals a quite discouraging picture among people. However, there exists both spatial and inter-community variation in health care facilities, functionalities and health awareness in the region. Hence, efforts need to be made to further improvement of the health care institutions along with the health consciousness measures among the people for overall development of health status among all groups of people in BTAD.

Acknowledgement

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11

Educational Inequalities and Changing Demographic Characteristics : A Case Study of Udalguri District, BTAD (Assam)

Sibani Basumatari *and* ***Bimal K. Kar***

Introduction

Education is a means of acquiring knowledge to understand various phenomena for a meaningful living and desirable human behaviour. It symbolizes the quality of human society and it is vitally important for a balanced development of any area. It not only raises one's self awareness, self confidence, decision making, but also has a significant impact on fertility and mortality pattern through improved socio-economic well-being. The rise in educational attainment level provides a platform for man's exposure to opportunity along with eradication of certain taboos and superstitions associated with social traditions and customs. It also influences the occupational structure, way of living and various demographic attributes and in bringing about a balanced socio-economic development of an area. Education is a continuous process of advancement of knowledge, skills and attitudes that empowers a mature adult to meet and improve upon his or her requirements. Attainment of higher education gradually transforms the society with its new thoughts and ideas and brings about a change in different demographic attributes.

In modern society, education has become a major element of stratification and differentiation (Kalmijn, 2006). The educational differences throughout the region, among different social groups and male-female counterparts largely influence the demographic attributes in a region. With this perspective the spatial pattern of literacy rate and educational attainment level in the study area and selected sample villages has been analysed in respect of prevailing socio-spatial variation and gender disparity.

Objectives

The main objectives behind the present study are:

a) to analyse the pattern of educational attainment including the gender disparity in the study area in both spatial and social contexts;
b) to assess the patterns of demographic character in the study area on the basis of fertility, mortality, sex ratio, age composition, life expectancy, age at female marriage, etc in both spatial and social contexts; and
c) to examine the impact of education on the demographic character and socio-economic well-being in the study area.

Database and Methodology

The data necessary for the study have been obtained from both primary and secondary sources. The basic framework of the study is derived by consulting relevant literature from the discipline of geography and other social sciences like sociology, anthropology and cultural studies. The secondary data necessary to understand the literacy rate, population composition, occupational structure, etc. have been obtained from various Census of India volumes for the period 1971-2011, Directorate of Economics and Statistics, Directorate of Education, NIC, etc. The primary data for the study have been collected through well designed household survey schedule-cum-questionnaire and village/town information schedule through purposive-random sampling technique. The sample villages have been selected in consideration of dominant population groups of the district. Apart from six sample villages, one urban center has been selected purposively to depict both rural and urban scenario of the educational pattern and demographic structure of the major population groups in the study area. The care has also been taken while drawing the sample so that it is well representative of the area and population. A minimum of 50 households have been considered for the sample villages and 80 for Udalguri town.

Study Area

The Udalguri district, which covers an area of 2,012 km^2, is located in the north-bank part of the Brahmaputra valley in Assam. It is one of the autonomous districts of BTAD constituted under the Sixth Schedule of the Constitution of India in 2003 by curving out some parts of Darrang and Sonitpur districts. Geographically, it is located between $26^0 25' 10''$ N to $26^0 56' 03''$ N latitude and $91^0 42' 02''$ E to $92^0 24' 51''$ E longitude (Fig. 11.1). It has been further subdivided into nine revenue circles, six of which are partly in BTAD area and partly outside. A considerable part of the district in the north is hilly being formed by the foothills of Bhutan and Arunachal Himalayas with wide stretch of

Khalingduar reserved forest and Rowta reserved forest. The important rivers like Barnadi, Kulsi, Chandana, Dhansiri and Pachnai drain the area from north to south. The Barnadi river creates the distinct boundary in the west with Baksa district, while Pachnai river forms the greater part of the district boundary in the east with Sonitpur district. Apart from this, study area is bounded on the north by Bhutan and Arunachal Pradesh; south by the district of Darrang; east by the district of Sonitpur; and west by Baksa district of BTAD.

As per 2011 Census, the total population of Udalguri district is 8,31,668 with a population density of 413 persons per km^2 as against the state average of 397 per km^2. Of its total population, 32.15 per cent is scheduled tribes (mostly Bodos) and only 4.52 per cent are urban dwellers as against state average of 14.09 per cent urban population. Although the area is Bodo dominant, it is inhabited by people of diverse ethnic and religious groups.

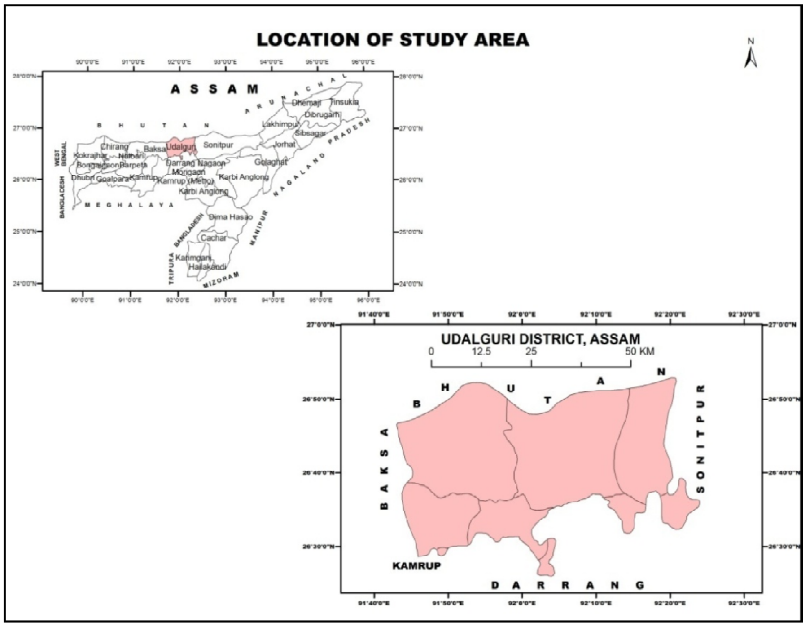

Fig. 11.1

Analysis and Discussion

Literacy Rate

Literacy, an important molding element of demographic attributes, acts as an amplifier in the overall development of an area. In India, a person is considered

to be literate if he or she can read and write with understanding in any language. So far the literacy rate of Udalguri District of Assam is concerned, it is lower (65.41 per cent) than the corresponding averages for both state of Assam (72.19 per cent) and BTAD (66.25 per cent). The literacy rate in the district also varies significantly between male (72.57 per cent) and female (58.05), and rural (64.43 per cent) and urban (85.14 per cent) areas (Table 11.1). Although gender disparity in this respect is lower (0.28) than the rural-urban disparity in the district (0.50), the gender disparity is slightly higher than the state average (0.25).

Table 11.1: Literacy Rate and its Gender Disparity and Rural-Urban Disparity in Udalguri District in Relation to BTAD and Assam, 2011

Districts	Literacy Rate (in percentage)					Gender Dispa-rity in Literacy	Gender Gap in Literacy Rate	Rural-Urban Disparity in Literacy
	Person	Male	Female	Urban	Rural			
Udalguri	65.41	72.57	58.05	85.14	64.43	0.28	14.52	0.50
BTAD	66.25	73.39	58.89	84.34	65.37	0.28	14.50	0.45
ASSAM	72.19	77.85	66.27	88.47	69.34	0.25	11.58	0.53

Source: Calculated from Census of India, 2011, PCA of Assam.

Like the other parts of the state, the literacy rate varies significantly between rural and urban areas in the district of Udalguri. Although the urban literacy rate is comparatively lower in the case of Udalguri district (85.14 per cent) than the state's urban literacy (88.47 per cent), it is found to be significantly higher than the rural counterparts (64.43 per cent) (Table 11.1).

So far spatial variation in literacy rate is concerned, it varies widely among the circles. Among all the circles, Pathorighat (part) circle of Udalguri district records highest literacy rate (79.05 per cent) due to considerably high concentration of non-tribal population, followed by Kalaigaon (part) circle (75.69 per cent) and Khoirabari (part) circle (74.26 per cent). In the case of urban areas, Udalguri circle witnesses the highest literacy rate (88.32 per cent), followed by Harisinga circle (86.16 per cent). However, the degree of spatial variation in rural literacy (CV=11.13 per cent) is slightly higher than that of urban literacy (CV=10.78 per cent) in the district (Table 11.2).

So far sample areas are concerned, the literacy rate is found to vary significantly not only between the urban areas and villages, but also among the villages. Among the sample areas, Udalguri town, being one of the important urban centres, has the highest literacy rate (91.78 per cent). Similarly, out of the selected sample villages, the non-tribal Assamese village, i.e. Bar

Table 11.2: Literacy Rate in Udalguri district at Revenue Circle level, 2011

District	Revenue Circles	Literacy Rate (in Percentage)		
		Total	Rural	Urban
Udalguri	Khoirabari (Pt)	74.26	74.26	0
	Pathorighat (Pt)	79.05	79.05	0
	Mangaldoi (Pt)	69.36	69.36	0
	Kalaigaon (Pt)	75.69	75.93	72.01
	Dalgaon (Pt)	63.20	63.20	0
	Harisinga	62.65	60.77	86.16
	Udalguri	65.64	63.78	88.32
	Mazbat	58.85	58.85	0
	Dhekiajuli (Pt)	60.88	60.88	0
Overall	Mean	67.73	67.34	82.16
	SD	7.19	7.50	8.86
	CV	10.61	11.13	10.78

Source: Calculated from Census of India, 2011, PCA of Assam.

Jalah (87.15 per cent) has the highest literacy, followed by Bodo dominated villages Mantikiri (85.55 per cent) and Songlabari (74.83 per cent), while it is significantly low in the Nepali village, i.e. Nepaligaon (60.25 per cent) and Adivasi village, i.e. Khokhagaon (67.02 per cent). But the gender disparity in literacy is notably higher in Bar Jalah (0.49), followed by Bengali village Pachim Nalbari (0.48) and Songlabari (0.33) (Table 11.3 and Fig. 11.2).

Table 11.3: Literacy Rate and its Gender Disparity in Sample Villages and Urban areas of Udalguri District, 2014

Dominant Community Village	Urban centre / Villages	Literacy Rate (in percentage)			Gender Disparity Index
		Person	Male	Female	
Mixed Community	Udalguri T.C.	91.78	94.68	88.89	0.35
Bodo	Songlabari	74.83	81.94	67.81	0.33
	Mantikiri	85.55	91.18	79.53	0.42
Tea Tribes (Adivasi)	Khokhagaon	67.02	77.62	56.11	0.43
Bengali	Pachim Nalbari	69.39	80.54	57.93	0.48
Assamese	Bar Jalah	87.15	92.81	80.74	0.49
Nepali	Nepaligaon	60.25	70.31	48.65	0.40

Source: Primary Survey, 2014.

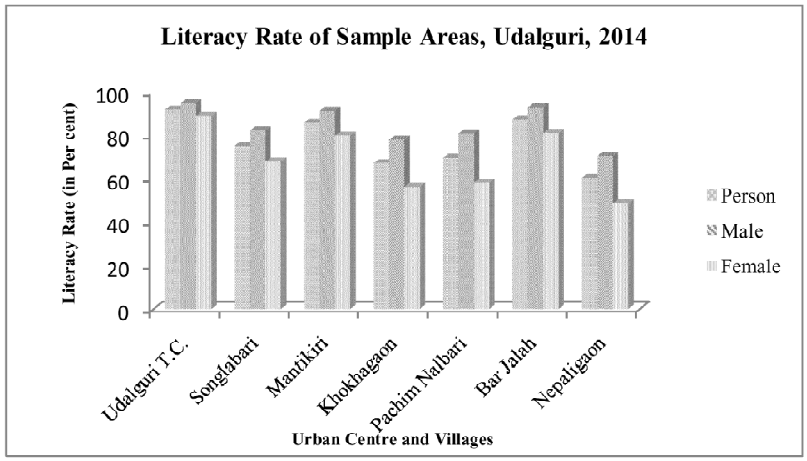

Fig. 11.2

Educational Level

The real social progress in an area is reflected by its educational attainment, because mere literacy rate cannot indicate advancement in education in the society. Although the literacy rates among the surveyed areas appear to be quite high, the picture, however, is quite discouraging in terms of educational attainment. It is observed that proportion of literates with educational level of graduation and above including the technical graduates (4.64) is significantly lower than the proportion with educational level primary, middle and HSLC/ HS (Table 11.4). In this respect the picture of female is even more discouraging. There is, however, significant spatial variation of educational attainment among the sample villages (Table 11.4). It is found in this context that proportion of graduates and above is significantly higher in the Udalguri T.C. (18.79 per cent), while it is quite discouraging that there is no graduate in the Nepali village. The educational attainment is far from satisfactory in the interior villages where most of the people are still engaged in subsistence agriculture, dairy farming, small business and unskilled jobs.

Age-Specific Educational Attainment

The study of age-group wise educational attainment with different educational level in socio-spatial context helps to understand the changing trend of educational development among the different social groups in the sample areas. The level of higher education influences the socio-economic condition and the demographic attributes of an area. There is a negative relationship between the age group of population and the proportion of literates with

Table 11.4: Educational Attainment as Proportion of Literates in Sample Areas of Udalguri District, 2014

Dominant Community	Urban centre /Villages	Person/ Male/ Female	Educational Attainment Level (In Percentage)					
			Primary	Middle	HSLC /HS	Graduate	Post Graduate	Technical Graduates
Mixed Community	Udalguri T.C.	Person	25.43	17.92	37.86	14.45	2.89	1.45
		Male	24.72	15.73	39.33	16.86	1.68	1.68
		Female	26.18	20.24	36.31	11.9	4.18	1.19
Bodo	Songlabari	Person	59.91	20.74	14.75	4.14	0.46	0
		Male	55.08	27.12	14.41	3.39	0	0
		Female	65.66	13.13	15.15	5.05	1.01	0
	Mantikiri	Person	39.56	36.00	24.00	0.44	0	0
		Male	31.45	37.90	29.84	0.81	0	0
		Female	49.50	33.66	16.84	0	0	0
Tea Tribe (Adivasi)	Khokhagaon	Person	56.61	28.04	13.23	1.59	0	0.53
		Male	55.85	28.83	12.61	2.70	0	0
		Female	57.69	26.92	14.10	0	0	1.28
Bengali	Pachim Nalbari	Person	50.49	25.49	21.08	2.94	0	0
		Male	55.83	21.67	20.00	2.50	0	0
		Female	42.86	30.95	22.62	3.57	0	0
Assamese	Bar Jalah	Person	37.85	33.87	24.70	3.58	0	0
		Male	33.80	35.92	25.35	4.93	0	0
		Female	43.12	31.19	23.86	1.83	0	0
Nepali	Nepaligaon	Person	60.42	30.55	9.03	0	0	0
		Male	54.45	34.44	11.11	0	0	0
		Female	70.37	24.07	5.56	0	0	0
Overall	Overall	Person	47.18	27.52	20.66	3.88	0.48	0.28
		Male	44.45	28.80	21.81	4.46	0.24	0.24
		Female	50.77	25.74	19.21	3.19	0.74	0.35

Source: Primary Survey, 2014.

educational level graduate and above. Although the attainment of higher education in the sample area is not satisfactory, higher proportion of literates with educational level HSLC, HS and graduate and above is observed in the lower age groups. Considering the minimum age of 22 for becoming graduate, the proportion of literates with educational level graduate and above is found to be 7.95 per cent in the age group 22-35 as compared to 5.25 per cent in age

Table 11.5: Percentage of Literates with Educational Level in Different Age Groups among the Sample Areas of Udalguri District, 2014

Dominant Community	Urban centre / village	Educational Level	Age Groups		
			22-35	35-60	60+
Mixed Community	Udalguri T.C.	Below HSLC	24.77	32.33	40.54
		HSLC/HS	40.37	39.10	18.92
		Graduates and Above	30.27	18.04	13.51
Bodo	Songla-bari	Below HSLC	59.37	48.27	11.54
		HSLC/HS	14.58	4.60	3.85
		Graduates and Above	6.25	3.45	3.85
	Mantikiri	Below HSLC	66.23	68.18	15.00
		HSLC/HS	23.38	18.18	15.00
		Graduates and Above	1.30	-	-
Tea Tribes (Adivasi)	Khokha-gaon	Below HSLC	61.90	36.62	8.33
		HSLC/HS	11.90	5.63	-
		Graduates and Above	3.57	-	-
Bengali	Pachim Nalbari	Below HSLC	58.97	31.58	8.69
		HSLC/HS	21.79	13.68	-
		Graduates and Above	3.85	2.10	-
Assamese	Bar Jalah	Below HSLC	63.37	66.30	23.33
		HSLC/HS	29.70	14.13	13.33
		Graduates and Above	2.97	4.35	-
Nepali	Nepaligaon	Below HSLC	63.38	20.97	-
		HSLC/HS	9.86	6.45	-
		Graduates and Above	-	-	-
Overall	Overall	Below HSLC	55.52	43.79	17.49
		HSLC/HS	22.73	16.88	8.20
		Graduates and Above	7.95	5.25	3.28

Source: Primary Survey, 2014.

group 35-60 and 3.28 per cent in age group 60+. This is indicative of the fact that progress of education is largely a recent phenomenon in most parts of the study area. The literates with education graduate and above in the age group 60+ are almost absent in all the sample areas excepting Udalguri T.C. and Songlabari. However, there is a significant spatial variation in this respect. The Udalguri T.C. has the higher proportion of literates in both graduate and

above and HSLC/HS in all the different age groups, and occupies a better position. It is, however, quite discouraging in the case of Nepaligaon village in almost all the fronts.

Demographic Characteristics

Demographic attributes such as birth rate, death rate, sex ratio, age composition, age at marriage, child-woman ratio, etc. influence the socio-economic development of different population groups in an area.

Sex Ratio

Sex ratio, which is defined as number of females per thousand males, is a vital determinant of demographic characteristics of any region (Chandna, 1986). The sex ratio of Udalguri district as a whole (973) is found to be quite encouraging as compared to the state average (958), and it has remained so during the last few decades (Table 11.6). In contrast to this the primary survey in some of the selected dominant community sample areas of Udalguri district, however, presents a varied sex composition. It is quite interesting to note that Songlabari, one of the Bodo dominated villages, has witnessed a higher proportion of female population than the males (1036). The lowest sex ratio among the sample areas is found in the Nepaligaon village (823), followed by Bar Jalah (882).

Table 11.6: Sex Ratio in Udalguri District, 1971-2011

Census Year	Sex Ratio (No. of females per 1000 males)	
	Udalguri	Assam
1971	902	896
2001	952	935
2011	973	958

Source : Based on Recasting of data from District Census Volumes, Series 4, 1971-2001 and PCA 2011.

Fertility and Mortality Patterns

The study of human fertility occupies a central position in the study of population for several reasons. It is responsible for biological replacement for the maintenance of the human society (Pati, 2008). The growth of population entirely depends on fertility pattern. In order to understand the natural change in population size the fertility is measured in terms of crude birth rate. The overall crude birth rate of the sample areas is found to be 27.23 per thousand population. However, there exists marked spatial variation in this respect. It is found to be varying from 35.06 per thousand in Nepaligaon

village to 18.83 per thousand in the Udalguri T.C. It is observed that the crude birth rate is comparatively higher in Adivasi (33.31per thousand) and Nepali (35.06 per thousand) village (Table 11.7).

Table 11.7: Sex ratio, Crude Birth Rate, Crude Death Rate, Life Expectancy, Mean age at female marriage in sample areas of Udalguri District, 2014

Dominant Community	Urban centre / Village	Sex Ratio	CBR	CDR	Life Expec -tancy	Mean Age at Female Marriage
Mixed Community	Udalguri T.C.	953	18.83	6.00	62.90	20.87
Bodo	Songlabari	1036	28.21	11.90	61.29	20.97
	Mantikiri	894	24.89	9.93	55.36	20.33
Tea Tribes (Adivasi)	Khokha-gaon	976	33.31	7.38	48.00	18.86
Bengali	Pachim Nalbari	963	27.03	15.77	45.58	19.72
Non Tribal Assamese	Bar Jalah	882	23.31	9.61	48.07	20.48
Nepali	Nepaligaon	823	35.06	6.47	48.67	19.21
	Overall	932	27.23	10.84	52.84	20.06

Source: Primary Survey, 2014.

Similarly, the study of mortality is useful for analyzing current demographic conditions as well as its contribution towards natural growth of population in an area. It deals with the effects of crude death rate on population. The crude death rate among the sample area is still considerably high with an overall average of 10.84 per thousand population (Table 11.7). However, spatially it is found to be highest in Pachim Nalbari, followed by Songlabari village, whereas lowest death rate is found in the urban area i.e. in Udalguri T.C.

Age Composition

The age composition of a population indicates the demographic and socio-economic well-being of a population group of an area (Kar, 2002). It is known that higher proportions of children (0-14) and old people (60+) are indicative of higher dependency ratio. In the selected surveyed areas the population of age group 0-14 constitutes 25.16 per cent of the total population, while population belonging to age group 15-60 accounts for 66.92 per cent and

those belonging to 60+ age group 7.97 per cent. The presence of considerably higher proportions of children population in Khokhgaon and Nepaligaon (Table 11.8) is also indicative of the prevalence of higher fertility rate among the tea tribes and Nepalese in the district. The overall average dependency ratio of the region is found to be 49.03 per cent. In respect of different communities, the highest dependency is found among the Nepalese (68.42 per cent), followed by Adivasis (63.55 per cent), while it is the lowest in the Bengali village (39.74). On the other hand, moderate proportion of dependent population is found in the Bodo villages, i.e. Songlabari (54.74 per cent) and Mantikiri (42.29 per cent) (Table 11.8).

Table 11.8: Age Composition of the Sample Population (in Percentage), 2014

Dominant Community	Urban centre / Village	Age Groups (in Percentage)			Dependency Ratio (in per cent)
		0-14	15-59	60 and Above	
Mixed Community	Udalguri T.C.	19.66	71.36	8.98	40.14
Bodo	Songlabari	27.78	64.62	7.6	54.75
	Mantikiri	22.73	70.28	6.99	42.29
Tea Tribes (Adivasi)	Khokha-gaon	31.63	61.14	7.23	63.55
Bengali	Pachim Nalbari	21.56	71.56	6.88	39.74
Assamese	Bar Jalah	20.12	70.13	9.75	42.6
Nepali	Nepali-gaon	32.64	59.37	7.99	68.42
	Overall	25.16	66.92	7.92	49.03

Source: Primary Survey, 2014.

Female Age at Marriage

Age at marriage has a direct impact upon the fertility rate and social well-being of human population. Early marriage is believed to be responsible for higher fertility and high rate of growth of population. It is, therefore, considered as an important indicator of socio-economic wellbeing of a society. In India the minimum constitutional age at marriage of females is still 18 years, and therefore, the fertility rate continues to remain high (Table 11.9). The mean female age at marriage of the study area is found to be 20.1 years. For all the sample areas of Udalguri district together, the mean female age at marriage varies with different age groups from 20.40 years for below 40 age group,

Table 11.9: Mean female age at marriage in different age groups in Sample Areas of Udalguri District, 2014

Urban centre / Villages	Mean Female Age at Marriage in different Age Groups of Married Females		
	Below 40	40-60	60 Above
Udalguri T.C.	21.21	20.69	19.86
Songlabari	21.72	19.57	20.28
Mantikiri	20.00	21.26	20.22
Khokhagaon	19.19	18.58	17.62
Pachim Nalbari	20.89	18.38	18.86
Bar Jalah	20.84	20.00	19.83
Nepaligaon	18.95	20.33	16.43
Overall	20.40	19.83	19.01

Source: Primary Survey, 2014

19.83 years for 40-60 age group and 19.01 years for 60 above age group of females. It is very discouraging to note that female age at marriage in Nepaligaon (18.95 years) for age group below 40 is still in the bench mark position.

Child-Woman Ratio

The child-woman ratio, which reflects the fertility behabiour, is also an important indicator of social well-being of an area. Among the economically down-trodden people, children are the important source of income and economic security for the family. In the sample survey areas, the average child-woman ratio is higher in the tea-tribe village Kokhagaon (6.19), followed by in Pachim Nalbari (4.67) and Nepaligaon (4.12) village. The comparatively lower child-woman ratio is found among the Bodo dominated villages like Mantikiri (3.00) and Songlabari (3.92) (Table 11.10). On contrary to this, the urban centre Udalguri T.C. has also witnessed significantly higher child-woman ratio (4.03). The reasons behind higher child-woman ratio in the region are early age at marriage, preference of larger family size, lower educational level, lower standard of living, poor economic condition, etc. Similarly, the average family size of the region is also quite large (5.47).

Spatial Variation of Educational Inequality and Associated Demographic Correlates

The persistence of high degree of relationship between education and demographic characteristics makes them inseparable from each other. It is

Table 11.10: Average Family Size and Child -Woman Ratio in the Sample Areas of Udalguri District, 2014

Urban Centre / Villages	Average Family Size	Child-Woman Ratio
Udalguri T.C.	5.15	4.03
Songlabari	5.80	3.92
Mantikiri	4.93	3.00
Khokhagaon	6.26	6.19
Pachim Nalbari	5.52	4.67
Bar Jalah	5.48	3.75
Nepaligaon	5.14	4.12

Source: Primary Survey, 2014.

It is generally observed that higher the level of educational attainment, more diverse will be the occupational structure. Consequently, better occupational status combined with income provides better educational facilities to a family along with the improvement of the socio-economic well-being of the family. In consideration of this reality an attempt has been made to examine the relationship between literacy rate and female work participation rate, education and demographic attributes, such as birth rate, death rate, age at marriage, etc.

Impact of Literacy Rate on Female Work Participation Rate

Literacy and education, being one of the important elements of occupational structure, has a close relationship with the female work participation rate of a society. It also helps to change the traditional social belief that females should work only in the house. Thus, it enhances an equal opportunity for females to work with the male counterparts. The correlation analysis reveals that there exists a positive relationship between literacy rate and female work participation (r= +0.32) in Udalguri district of Assam (Table 11.11). It thus means that improvement in literacy rate has opened up avenues for the females by rising work participation in different activities.

Impact of Educational Attainment on Occupational Structure (non-agricultural workers)

The level of educational attainment also influences the occupational pattern of a population group along with the overall development of the society (Hussain, 2011). There exists a highly positive association between the level

Table 11.11: Literacy Rate and Female Work Participation Rate in Udalguri District, 2011

Urban centre / Villages	Literacy Rate (%)	Female work participation Rate (%)	Correlation Coefficient
Udalguri T.C.	29.97	13.98	+0.32
Songlabari	50.21	4.24	
Mantikiri	58.37	30.54	
Khokhagaon	46.44	1.05	
Pachim Nalbari	42.62	9.06	
Bar Jalah	56.43	8.32	
Nepaligaon	38.64	4.52	
UDALGURI	65.41	27.88	
ASSAM	72.19	22.46	

Source: Calculated from Census of India, PCA series 1, 2011.

of educational attainment and non-agricultural workers (Table 11.12). The percentage of non-agricultural workers increases with the increasing percentage of literates with graduate and above (r= 0.99). In this respect, the proportion of higher literates in the below HSLC level leads to declining proportion of non-agricultural worker and vice versa; showing a negative relationship (r= -0.30). Thus, higher educational attainment level opens up variety of new opportunities of entrepreneurship leading to upliftment of socio-economic well-being in Udalguri district in BTAD.

Impact of Literacy Rate on the Fertility and Mortality

Literacy, which is the key factor of socio-economic transformation, influences demographic attributes such as fertility and mortality rates along with prevailing socio-cultural and religious belief system among the different communities. As such there is an inverse relationship between the literacy and the fertility and mortality rates, i.e. higher the literacy rate, lower is the fertility and mortality rates and vice-versa.

So far the sample areas are concerned, the correlation analysis reveals that there exists a negative relationship between literacy rate and crude birth rate (r= -0.94). It means the advancement of literacy is of significance towards controlling fertility in the sample areas. But its impact in bringing down the fertility level is not uniform among the different groups, which may be analysed separately among the different social groups.

In the case of mortality, the contribution of literacy rate is, however, found to be quite insignificant as the degree of relationship has been very weak with the crude death rate (r= -0.11). It means in the present day context, the role of literacy and education towards controlling death rate has become

Table11.12: Level of Educational Attainment and Non-Agricultural Workers in Udalguri District, 2014

Urban centre / Villages	Below HSLC			HSLC/HS			Graduates and Above		
	Literates (in per cent)	Non Agri-cultural Workers (in per cent)	Corre-lation Coeffi-cient	Literates (in per cent)	Non Agri-cultural Workers (in per cent)	Correl-ation Coeffic-ient	Literates (in per cent)	Non Agri-cultural Workers (in per cent)	Correl-ation Coeffi-cient
Udalguri T.C.	29.97	28.74	-0.30	41.04	34.48	0.96	20.85	25.86	0.99
Songlabari	50.21	11.02		11.91	11.02		4.25	6.78	
Mantikiri	58.37	6.96		25.36	26.39		0.48	0	
Khokhagaon	46.44	4.13		10.90	9.09		0.95	0.83	
Pachim Nalbari	42.62	50.44		16.46	16.81		2.53	4.42	
Bar Jalah	56.43	36.58		24.48	27.64		3.73	4.06	
Nepaligaon	38.64	23.33		9.09	5.55		0	0	

Source: Primary Survey, 2014.

quite insignificant. In fact, the decline of mortality rate has almost become a universal phenomenon. The somewhat higher death rate as prevalent in the study area is mainly associated with low level of living condition, lack of proper health awareness, etc.

Female Literacy and Child-Woman Ratio

Child-woman ratio is greatly dependent upon the traditional belief system and socio-cultural practices and the prevailing socio-economic condition of a society. It is the education which uplifts the socio-economic condition of an individual and the society as a whole and has significant impact upon the quality of life and the demographic character. As the educational level and age at marriage are positively related, it influences the child-bearing propensity of women. There is an inverse relationship between the literacy rate among women and the number of children born to them. A correlation analysis between female literacy rate and child-woman ratio shows a highly negative association (r= -0.56). It means higher the female literacy rate lower is the child-woman ratio in the sample area.

Impact of Educational Attainment on Female Age at Marriage and Fertility

It is a fact that when tendency of attaining higher education among the females increases, it positively influences the age at marriage. Similarly, attainment of higher education helps in lowering down the fertility rate due to marked decline in the length of actual reproductive period. However, it differs from one social group to another. So far the sample areas are concerned, there is a significantly high positive relationship between the educational attainment of graduate and above and female age at marriage (r= 0.54). It means higher the proportion of graduates and above in an area, higher is the female age at marriage. Thus, with the higher proportion of literate with educational level graduate and above (17.24 per cent) in Udalguri T.C. the female age at marriage has become somewhat higher (20.87years) with consequent decline in crude birth rate (18.83 per thousand) (Table 11.13). Thus, as expected, there is a quite significant negative relationship between educational level graduate and above and crude birth rate (r = -0.72).

Educational Attainment and Age Composition

Age composition is determined by the fertility and mortality rates of a population of any area. As the fertility and the mortality rates are influenced by the educational level, the impact of education upon the age composition

Table 11.13: Educational Attainment, Female Age at Marriage and Fertility Rate in Udalguri District, 2014

Urban centre / Villages	Educational attainment (percentage of graduate and above)	Female age at marriage	Crude Birth rate (per thousand)
Udalguri T.C.	17.24	20.87	18.83
Songlabari	3.45	20.97	28.21
Mantikiri	0.35	20.33	24.89
Khokhagaon	1.42	18.86	33.31
Pachim Nalbari	2.04	19.72	27.03
Bar Jalah	3.12	20.48	23.31
Nepaligaon	0	19.21	35.06

Source: Primary Survey, 2014.

has become an obvious phenomenon. Usually, there is an inverse relationship between the educational level and the percentage of population in the children age group (0-6). With the higher percentage of female literates with educational level graduate and above accompanied by technical graduates there has been decline in population in the age group 0-6 as found in Udalguri T.C., while with no graduate in Nepaligaon village has witnessed higher proportion of population in age group 0-6 (17.01 per cent). As expected, there exists a negative association between female graduate and above and population in age group 0-6 (r= -0.37) in the study area. It means higher the level of educational attainment among females, lower is the population in age group 0-6 (Table 11.14).

Table 11.14: Educational Attainment and Age Composition in Udalguri District, 2014

Urban centre / Villages	Female educational attainment (percentage of graduates and above)	Population in Age Group 0-6 (in Percentage)
Udalguri T.C.	17.24	8.49
Songlabari	3.45	15.20
Mantikiri	0.35	8.04
Khokhagaon	1.42	15.06
Pachim Nalbari	2.04	8.12
Bar Jalah	3.12	9.43
Nepaligaon	0	17.01

Source: Primary Survey, 2014.

Conclusion

The foregoing discussion reveals that the district of Udalguri still presents a considerably low literacy rate and educational attainment with their marked variation in its different parts inhabited by diverse groups of people. The picture in this respect is, however, quite encouraging in the Udalguri town, and far from satisfactory in the Nepali inhabited Nepaligaon. The age-specific literacy rate and educational attainment in all the sample survey areas in the district is indicative of gradual improvement of the situation in recent time. As influenced by prevailing variation in literacy rate and educational attainment, the demographic attributes like the birth rate, proportion of children, female age at marriage and child-woman ratio also present a marked variation depending on locational factor and socio-cultural background of the areas concerned. Further, the contribution of literacy and educational attainment towards the prevailing birth rate, female work participation, proportion of non-agricultural workforce, female age at marriage and child-woman ratio has been found to be quite significant. Hence, efforts need to be made to further improve the educational attainment of the people in the district for overall rise in socio-economic well-being among all groups of people.

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Educational Development And Prevailing Health Status In Bodoland Territorial Areas District (Btad), Assam

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Abstract

Education, being the means to acquire knowledge, influences healthy living and treatment seeking behaviour among people. It not only enhances one's behaviour towards self confidence, self awareness, decision making, but also have controls on maintaining good health. Education is also considered a key that allows an individual to function in modern society and to have choices about what sort of life they may lead (Schultz, 1962). There is a two way causal interrelationship between the education and health status of an individual (Ahmed, 2013). Education trains individuals to acquire, evaluate and use information in attaining healthy life. However, the level of educational attainment, its nature and degree varies socio-spatially and it results in variation of health status. This is no less significant in the state of Assam more particularly in the districts of BTAD. With these considerations, an attempt is made in this paper to analyse the socio-spatial variation of educational progress, prevailing diversity in health status and the impact of educational development on the prevailing health status. The data pertaining to the study have been gathered from both secondary and primary sources. The data so obtained have been analysed and presented through meaningful statistical and cartographic techniques.

Key words: *Educational attainment, educational inequality, health status, BTAD.*

Introduction

Education as a means of imparting knowledge to human society determines human behaviour towards achieving unwavering health status of an individual and also acts as an accelerating element of overall socio-economic development of an area. It leads to develop learned effectiveness that enables self direction towards habits, skills, resource and abilities to achieve a better life (Mirowsky and Ross, 2003). It provides scope to improve efficiency in health, changing lifestyle habits, time preference for health care, etc. The growth of educational attainment level provides a platform for man's exposure to opportunity along with eradication of certain taboos and superstitions associated with social traditions and customs. It does not merely mean the eradication of illiteracy; rather it is the mitigation towards the negligence. In total it is the means or way to develop inherent capacities of an individual in the surrounding environment. The slow progress of educational development still leads to negligence towards health and prevalence of practicing certain age-old taboos for maintaining health condition. Apart from this, the prevalence of inequality in educational development in different

parts of the country including the state of Assam and more particularly in the districts of BTAD leads to prevalence of low health consciousness.

So far the literacy rate of the Bodoland Territorial Areas District (BTAD) of Assam is concerned, it is considerably lower (66.25 per cent) than the corresponding state average (72.19 per cent) and national average (72.98 per cent). It is even more discouraging among the females (58.89 per cent) as compared to males (73.39 per cent). Similarly, about 12.52 per cent of households in BTAD do not have any literate member within the family (2011 Census). With this perspective, an attempt is made in this paper to analyse the diverse pattern of educational development and its impact on prevailing health status in socio-economically varied BTAD region.

Objectives

The basic objectives behind this study are:

(a) to analyse the pattern of educational development and prevailing health status in the study area on the basis of birth rate, death rate, infant mortality rate, under 5 mortality rate, life expectancy, etc in both spatial and social contexts; and

(b) to examine the impact of education on the prevailing health status in the study area.

Data base and methodology

The data necessary for the study have been gathered from both primary and secondary sources. The secondary data relating to literacy rate and educational attainment, etc. have been obtained from the different volumes of Census of India, 1971-2011. The primary data for the study have been collected through well-designed household survey schedule-cum-questionnaire through stratified random sampling technique. The sample villages have been selected in consideration of dominant population groups of the district. As many as 23 sample villages, 2 urban centers have been selected purposively to depict both rural and urban scenario of the health status among the major population groups in the study area. The data so collected through both secondary and primary sources have been analysed with the help of meaningful statistical techniques ranging from simple ratio to complex Principal Component Analysis to find out the level of educational development and its impact on the prevailing health status of the region.

Analysis and Discussion

Literacy Rate

The study of literacy rate is considered as one of the important parameters for assessing the overall change and development of human behaviour towards achieving a better health condition. However, the trend of literacy rate has witnessed marked variation during the last few decades at different parts of the region. The lack of consciousness towards the need of education, lack of availability of number of educational institutions in an around the villages, inequality in the distribution of educational institutions throughout the region, etc. leads to the wide spatio-temporal variation of literacy rate.

Spatio-Temporal Character of Literacy

Although the literacy rate increased from 19.54 per cent to 66.25 per cent during 1971-2011 in the BTAD region, it has always been considerably lower than the state average and national average throughout the 1971-2011period (Table 1). So far literacy rate among the districts in the region as per 1971 is concerned, it was considerably higher in Kokrajhar district and lower in Udalguri district. In the latter period, i.e. during 2001-2011, Baksa district (69.25 per cent) witnessed significantly higher rate of literacy, followed by Udalguri district (65.41 per cent). However, it is quite low in Chirang district (63.55per cent) (Fig.1).

Table 1: Spatio-Temporal Pattern of Literacy Rate in BTAD in relation to Assam and India, 1971-2011

Districts	Literacy Rate (in Percentage)		
	1971*	2001	2011
Kokrajhar	20.87	52.77	65.22
Chirang	20.00	52.79	63.55
Baksa	20.00	59.58	69.25
Udalguri	17.59	56.40	65.41
BTAD	19.54	55.77	66.25
ASSAM	28.14	63.25	72.19
INDIA	34.45	64.83	72.98

*1971 Literacy Rate includes 0-6 Population (Based on recasting of 1971 data as per 2011 Census administrative boundaries).

Source: Census of India, Assam, Primary Census Abstract, 1971, 2001 and 2011.

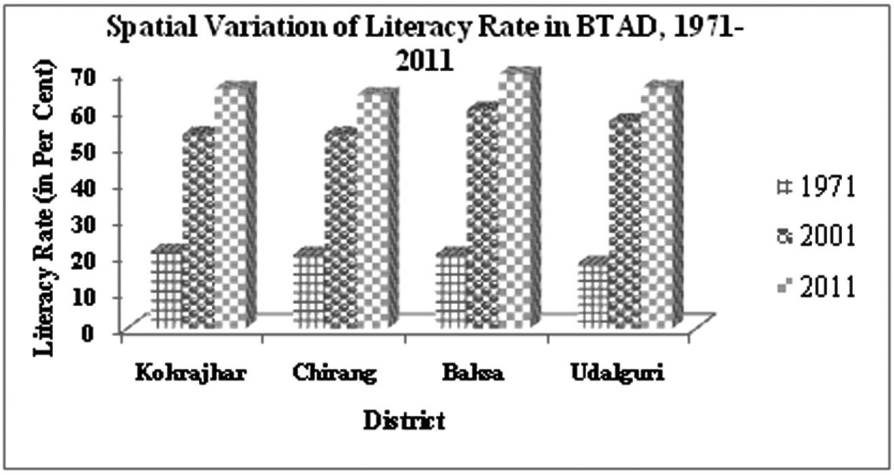

Fig.1 : Spatial Variation of Literacy Rate in BTAD, 1971-2011

Inter-Community Variation in Literacy

So far inter-community variation in literacy rate in BTAD region is concerned, among all the communities, Assamese community records the highest literacy rate (88.47 per cent), followed by Koch-Rajbongshi (81.36 per cent) and Bodo (81.07 per cent). The lowest rate of literacy is found among the tea tribes (57.48 per cent) and non-indigenous Muslims (57.53 per cent) of the region. Similarly, the highest male literacy is found among the Assamese community (93.79 per cent), followed by Koch-Rajbongshi (91.07 per cent) and Bodo (85.85 per cent) communities. However, it is quite interesting to note that Bodo community represents the lowest male-female literacy difference (9.54) and thus reflects better social position of females in terms of literacy (Table 2). But in contrary to this, there exists marked gender gap among the Bengali community (22.86) as reflected by the sample data. It is further observed that the mixed communities living in the urban areas record a higher rate of literacy with considerably lower gender gap largely due to growing urbanism and agglomeration of all the services in an around the urban centres. Thus, the study reflects variation of literacy rate among the different communities and presents the dichotomy between the male and female and also rural-urban areas throughout the region.

Table 2: Inter-Community Variation of Literacy Rate in BTAD, 2013-2015

Population Group	Literacy Rate (in percentage)			Male-Female Differentials	Gender Disparity in Literacy
	Person	Male	Female		
Bodo	81.07	85.85	76.31	9.54	0.12
Indigenous Muslims	73.86	83.22	61.74	21.48	0.29
Non-Indigenous Muslims	57.53	63.96	50.36	13.60	0.24
Koch-Rajbongshi	81.36	91.07	70.47	20.60	0.25
Tea Tribes	57.48	67.38	47.21	20.17	0.35
Bengali Hindu	71.09	84.98	62.12	22.86	0.32
Non-Tribal Assamese	88.47	93.79	82.42	11.37	0.13
Nepali	70.21	76.42	63.78	12.64	0.18
Mixed Community (Urban Areas)	93.53	97.84	89.23	8.61	0.09

Source: Primary Survey, 2013-2015.

Educational Attainment Level

Education symbolizes the quality of human society and it is vitally important for balanced development of any region. The real progress in an area is reflected by its educational attainment, because mere literacy rate could be a liability to the society. Education is the base of all the development and advancement of civilization aim at evolution of a better

man and development of mind (Sharma, 2003). Educational attainment makes an individual more effective, having intellectual skill and other effective traits. It enhances individual's power of exploration, judgment and reasoning capacity and practice of good habits. The higher level of educational attainment plays an important role in the adoption and practice of healthy habits and maintaining healthy lifestyle. Thus, the studies of educational attainment have a great significance to understand the prevailing social situation and its impact on the overall health status of a region.

Pattern of Educational Attainment: Socio-Spatial Variation

Although the literacy rate among the surveyed areas appears to be quite high, the picture however is quite discouraging in terms of educational attainment. It is observed that proportion of literates with educational level of graduation and above (6.30 per cent) including the technical graduates (0.51 per cent) is significantly lower than the proportion of primary, high and HSLC/HS literates in the BTAD region (Table 3). There is, however, significant spatial variation of educational attainment level among the sample areas. It is found in this context that proportion of graduates and above is significantly higher in the urban centres (21.17 per cent) than the villages (4.30 per cent). In contrary to these, the technical/professional graduates are insignificant and are only 2 per cent in the urban sample areas and 0.31 per cent in the rural areas.

So far the district level variation of the education attainment levels is concerned, Kokrajhar district witnesses higher proportion of both general graduates and above population (9.70 per cent) and technical graduates (0.81 per cent) population. The higher educational attainment level both in respect of general graduates (1.90 per cent) and technical graduates (0.10 per cent) is found lowest within the Baksa district. The higher proportion of below HSLC educational level is found in respect of Baksa district (Table 3)

Table 3: Educational Attainments as Percentage of Literates in BTAD, 2013-2015

Districts	Below HSLC			HSLC/HS			General Graduates and above			Technical/ Vocational Graduates		
	T	M	F	T	M	F	T	M	F	T	M	F
Kokrajhar	59.78	58.06	62.15	29.70	29.92	29.40	9.70	10.61	8.45	0.81	1.41	0
Chirang	70.52	66.73	74.55	20.42	23.08	17.79	8.44	9.61	6.98	0.62	0.58	0.67
Baksa	81.82	75.04	89.91	16.18	22.02	9.21	1.90	2.75	0.88	0.10	0.18	0
Udalguri	73.42	73.42	73.41	21.22	21.21	21.24	5.02	5.18	4.77	0.34	0.19	0.58
BTAD	70.86	68.37	74.13	22.32	24.03	20.13	6.30	6.98	5.37	0.51	0.62	0.37

Source: Primary Survey, 2013- 2015.

So far the intercommunity variation of educational attainment level is concerned, there is hardly any graduate in the indigenous Muslim dominated community villages due to the slow progress of modern education system and less accessibility of higher educational institution from the villages. Similarly, among the socio-economically backward Nepali community also, the higher educational attainment level, i.e. the proportion of graduates and above (0.27 Per cent) is very insignificant. Among the tea tribe community also the proportion of graduates is very nominal (0.64 Per cent). However, the Bodo, one of the dominant communities in BTAD, has comparatively higher proportion of educational attainment level. The 8.33 per cent of Bodo community people have an educational level of graduations and above qualification and only 0.51 per cent of it have technical graduate population. It has been followed by the non-tribal Assamese community population, among which also the importance of graduates and above level of higher education is prevalent (5.23 per cent). It has also a minimal proportion of technical graduates (0.37 per cent). In contrary to these, among the Nepali, tea tribes, indigenous Muslims, non-indigenous Muslims and Koch-Rajbongshi communities, the higher proportion of people below the HSLC level as found indicates still lower educational progress among the communities (Table 4). Thus, the awareness towards the development of modern education system and its importance, economic backwardness, accessibility and unequal distribution of educational institutions are the major causes of low level of educational attainment in the entire BTAD region.

Table 4: Educational Attainments as Percentage of Literates at Community Level in BTAD, 2013-2015

Population Groups	Below HSLC			HSLC/HS			General Graduates and above			Technical/Vocational Graduates		
	T	M	F	T	M	F	T	M	F	T	M	F
BD	65.80	60.05	72.24	25.36	29.84	20.35	8.33	9.51	7.01	0.51	0.60	0.40
IM	83.87	97.18	88.72	16.13	2.82	11.28	0	0	0	0	0	0
NIM	83.03	81.72	84.89	14.28	14.72	13.67	2.68	3.55	1.44	0	0	0
R	80.06	80.11	80.00	17.56	16.89	18.49	2.37	3.00	1.51	0	0	0
TT	86.30	86.70	85.83	12.74	12.23	13.38	0.95	1.06	0.79	0	0	0
BH	79.04	75.86	83.54	19.70	22.41	15.85	1.26	1.72	0.61	0	0	0
NTA	65.42	57.99	74.09	28.97	33.33	23.89	5.23	7.99	2.02	0.37	0.69	0
N	87.88	82.09	95.06	11.84	17.41	4.94	0.27	0.50	0	0	0	0
MC	35.75	30.60	41.38	40.69	41.95	39.31	21.09	23.97	17.93	2.47	3.47	1.38

* BD- Bodo, IM-Indigenous Muslims, NIM-Non Indigenous Muslims, R-Koch-Rajbongshi, TT-Tea Tribes, BH-Bengali Hindu, NTA-Non-Tribal Assamese, N- Nepali, MC-Mixed Community (Urban Areas)

Source: Primary Survey, 2013- 2015.

Educational Development

In order to understand precisely the development of education in socio-spatial perspective, the level of educational development is found out with consideration of both positive and negative indicators of educational development. The development of education system in the region has been analysed on the basis of as many as ten indicators of educational patterns like percentage of literacy rate (X_1), male-female differential in literacy (X_2), rural-urban differential in literacy (X_3), percentage of literates with HSLC/HS (X_4), percentage of literates with Graduation and above (X_5), male-female differential in HSLC/HS (X_6), male-female differential in Graduation and above (X_7), literacy rate in below 20 years of age (X_8), male-female differential in literates below 20 years of age (X_9) and percentage of literates with HSLC and above in 22-35 age group (X_{10}).

The level of educational development in district level reflects distinct scenario as Udalguri (1.70) and Kokrajhar (1.30) districts possess positive level of educational development due to higher educational attainment level and low gender differential in it as compared to the rest of the districts of BTAD. In contrary to these, another two districts, i.e. Chirang (-1.57) and Baksa (-1.45) districts, indicates still negative educational development. So far the community level educational development is concerned, the mixed community dwelling in the urban areas has considerably higher level of educational development (10.48) as compared to the rest of the community villages.

Table 5: Educational Development Level in BTAD, 2013-2015

Population Groups	Composite Z-score Value
Bodo	4.15
Indigenous Muslims	-2.64
Non-Indigenous Muslims	-4.56
Koch-Rajbongshi	-0.82
Tea Tribes	-5.33
Bengali Hindu	-2.99
Non-Tribal Assamese	4.16
Nepali	-1.80
Mixed Community (Urban Areas)	10.48

Source: Calculated by Researcher, 2013-2015.

The negative level of educational development is prevalent throughout all the dominant communities excluding Non-Tribal Assamese (4.16) and Bodo (4.15) communities. However, the lowest level of educational development is found among Tea Tribes community (-5.33) and Non-Indigenous Muslim communities (-4.56) (Table 5). Hence, progress of education throughout all section of community is still not up to the mark in the districts of BTAD.

Spatial Variation in Health Status

Health and the provision of health care are an essential part of the quality of life because they directly affect one's daily activity and psychological as well as physical well-being (Kwon, 2003). Improvement in the standard of living and health status of population has remained one of the important objectives of human development throughout the world. The conditions of associated health

indicators like crude birth rate, death rate, child mortality rate, life expectancy rate, disability rate, etc. explain about the overall health status of people. Although the performance of these indicators is on the decline throughout the region, it still requires long process to need to attain stable health condition. Therefore, the studies of these variables have a great significance to understand the overall state of prevailing health scenario of the entire BTAD region. The nation has succeeded in bringing down the death rate throughout the country, but it has not been able to control the birth rate due to prevalence of early age marriage in most of the parts of the country along with the prevailing poverty and low literacy rate and preference of male child. The crude birth rate (CBR) is the total number of live births per 1,000 populations in a year and is an important indicator of fertility rate and population growth. It is closely interlinked with women health and higher the value of crude birth rate signifies lower overall health condition. So far the national level figure of CBR is concerned, throughout the country possesses very high CBR (20.8 per thousand) and in state level (22.0 per thousand) particularly in BTAD (28.86 per thousand) the figure is even higher than the national rate (SRS Bulletin, 2016). As a result of better implication of family planning measures and greater awareness towards the population growth due to larger educational advancement in urban areas than rural sample villages of the region, lower rate of CBR is found in urban areas than the rural counterparts. So far the spatial variability of CBR in district level, greater rate is revealed in Baksa district (26.10 per thousand) followed by Chirang district (24.81 per thousand) which exceeds both the national average (5.3 in Baksa and 4.01 in Chirang) and state average CBR (4.1 in Baksa and 2.81 in Chirang) while Kokrajhar district (17.15) have lower CBR than both the national and state average and Udalguri district (21.54) have slightly higher CBR rate than the national average and lower CBR than the state average. Similarly, death or mortality rate also signifies the state of health condition and higher the rate of death lower will be the state of health condition in a region. In India the death rate is 6.5 while the state of Assam have slightly higher death rate (7.1) than it. However, in these respect the BTAD region still possesses very high death rate (10.44 per thousand). Although with the advancement of medical science and public health sector throughout the country, the rate of death has been declining abruptly from that of the pre independence period, but all the four districts of BTAD possess comparatively higher death rate than the state and national figure. The district level variation of death rate is found to be highest in Kokrajhar district (13.88 per thousand) and lowest in Baksa district (7.16 per thousand).The prevalence of high birth rate and comparatively low death rate in Chirang and Baksa district as compared to Kokrajhar and Udalguri district leads to high population growth rate.

The pattern of child mortality is one of the foremost indicators or measures to understand the state of health condition. The child mortality is the rate of incidence of death of child below the age of five. The trend of child mortality rate both in terms of infant mortality rate (IMR) and under-5 mortality rate (U5MR) show a slow decline in India as a whole. Infant Mortality Rate

is the number of deaths of children less than one year of age in a given year per 1000 live births in that year. Although IMR has declined from 129 during 1971 to 37 during 2015 in national level and from 139 during 1971 to 47 during 2015 in the state of Assam, the districts of BTAD still possess high IMR (50.26 per thousand) and it is long way to attain desirable level in the study region. The district level IMR is recorded as higher in Kokrajhar district (55.95 per thousand), followed by Udalguri district (50.20 per thousand), while comparatively it is the lowest in Baksa district (46.24 per thousand) (Table 6).

The under-five mortality rate is the child death before reaching the age of five. It is expressed as a rate per 1,000 live births in 0-5 Age Groups. The rate of U5MR is recorded as a very high in the region (63.10 per thousand). The district level study reveals greater proportion of U5MR in Baksa district (65.69 per thousand), followed by Udalguri district (64.97 per thousand).

Table 6: Crude Birth Rate, Crude Death Rate, Infant Mortality Rate, Under 5 Mortality Rate and Disability Rate in BTAD, 2014-2015

District	CBR	CDR	IMR	U5MR	Average age at Death	Disability Rate
Kokrajhar	17.15	13.88	55.95	60.76	58.21	0.20
Chirang	24.81	7.91	49.08	55.04	58.13	0.59
Baksa	26.10	7.16	46.24	65.69	55.04	1.22
Udalguri	21.54	10.99	50.20	64.97	55.53	0.43
BTAD	**28.86**	**10.44**	**50.26**	**63.10**	**56.84**	**0.56**
Mean	**21.57**	**10.43**	**51.06**	**61.16**	**57.85**	**0.55**
SD	**7.83**	**4.42**	**8.65**	**8.65**	**6.55**	**0.70**
CV	**36.29**	**42.40**	**16.94**	**14.14**	**11.32**	**128.11**

Source: Primary Survey, 2014- 2015.

The average age of death is one of the important indicators to measure level of health status in a region as it explains average life expectancy or a person expected to live. The higher the average age of death indicates low infant and child mortality, an increase in ageing population, and high quality of healthcare delivery. In India, average age of death or life expectancy has increased significantly over the past century, reflecting the considerable fall in mortality rates, initially from infectious diseases, maternal mortality and cardiovascular disease, etc. due to advancement in health care service sector throughout the country. However, despite development in health care sector in most parts of the country, average age at death is still very low in the country. The picture in the state of Assam and particularly in the districts of BTAD has been still quite discouraging. The average life expectancy or average age at death in

the BTAD region is still as low as 56.84 years, which is significantly lesser than the national average (66.90 as per 2011 Census). However, at district level the average age of death is found to be lowest in Udalguri district (54.94 years) among rest of the districts of BTAD (Table 7.8). Apart from it, the prevalence of disability also hinders health status of an area. Although the rate of disability in BTAD (0.56 per cent of total population) is lesser than national average (2.1 per cent as per 2011 Census), its prevalence varies from one area to another. Thus, to understand overall health status of the region based on considered health indicators composite Z-score values are found out at district level in BTAD. As per the derived values, among all the four districts of BTAD, Chirang district (2.61) occupies comparatively better position, followed by Kokrajhar district (0.68), while Baksa (-2.23) and Udalguri (-1.06) districts have lower health status (Fig. 2).

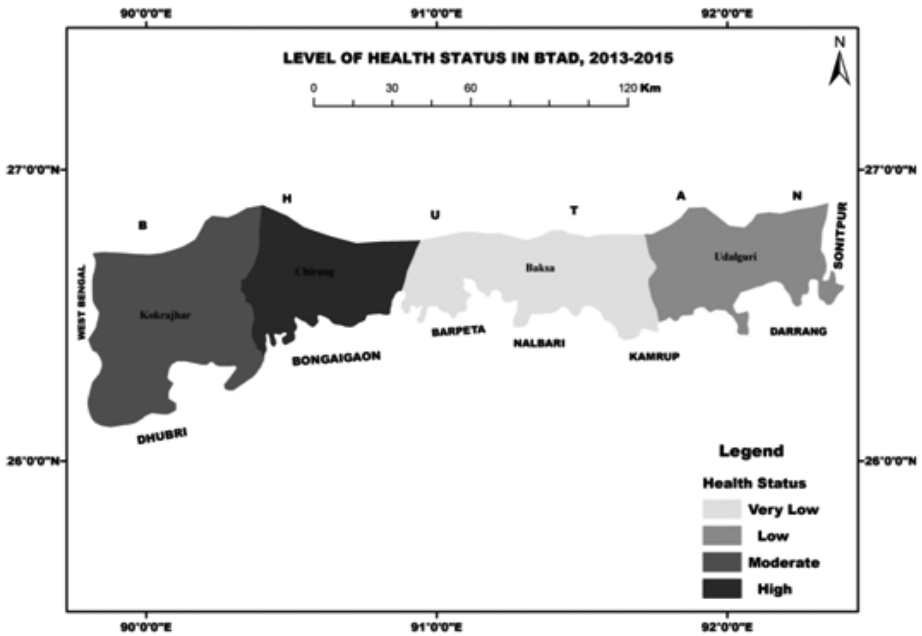

Fig. 2 : Level of Health Status in BTAD, 2013-2015

Inter-Community Variation in Health Status

The performance of associated health indicators like crude birth rate, death rate, child mortality rate, life expectancy rate, disability rate, etc also varies at community level. CBR among all the communities, excluding Bengali Hindu (17.78) and non-tribal Assamese (19.76) community, have been still higher than the national

average birth rate (20.8), while indigenous Muslim, non-indigenous Muslim, tea tribes and Nepali communities have recorded significantly higher CBR than the state level birth rate (22) (Table 7). So far variation in CBR at community level is concerned, higher CBR prevails among non-indigenous Muslim community villages (35.39 per thousand) and indigenous Muslim (33.86 per thousand) villages, while as a result of considerable advancement in health care services and increased level of standard of living, lower CBR is recorded among mixed community inhabiting (11.22 per thousand) urban areas. Similarly, CDR is also one of the very important indicators of health status, and its declining rate signifies improvement in levels of health in a region, which also varies at community level. The CDR has still been significantly high among tea tribe communities (17.80 per thousand) due to prevalence of low health awareness and consciousness among them along with comparatively lesser health care accessibility. Apart from this, non-indigenous Muslim community and Bengali Hindu community also witness prevalence of high CDR. Thus, all the considered communities record a considerably higher CDR than the national average (6.5) and state average (7.1) death rate, except among non- tribal Assamese community (6.24), which is found to be one of the lowest (Table 7).

So far child mortality rate in respect of IMR is concerned, only the mixed community (32.43) dominated urban areas of BTAD region have better position, as the IMR is considerably lower than the national average (37). However, the situation among the different communities is quite discouraging, as all the population groups experience higher IMR than the national and state averages (47), except that of non-tribal Assamese community (45.61). The highest level of IMR prevails among the tea tribe community (59.46) in the BTAD region as compared to all communities. Similarly, there exists inter-community variation in mortality rate among children under 5 years of age (U5MR). The data reveal that the tea tribe community records the highest U5MR (70.59 per thousand) and it is closely followed by the Bengali Hindu (70 per thousand) dominated villages. It is, however, found to be slightly low among the indigenous Muslims (68.29 per thousand), Nepali community (64 per thousand) and non-indigenous Muslim community (63.01 per thousand) (Table 7).

The higher age of death or greater life expectancy is recorded in urban areas inhabited by mixed communities (64.86 years), followed by non-indigenous Muslim (60.77 years), while lowest rate of life expectancy is found to be prevailing among tea tribe community (47.44 years). On the other hand, the rate of occurrence of disability is found to be more among indigenous Muslim community (2.15 per cent), followed by Nepali community (1.82 per cent) villages, while the lowest disability rate is recorded among tea tribe communities (0.16 per cent) and Koch-Rajbongshi community (0.23 per cent) villages (Table 7 and Fig. 3).

Table 7 : Community Level Variations in Crude Birth Rate, Crude Death Rate, Infant Mortality Rate, Under 5 Mortality Rate and Disability Rate in BTAD, 2013-2015

Population Group	CBR	CDR	IMR	U5MR	Average age at Death	Disability Rate	Composite Z- score Value
Bodo	20.14	8.48	50.00	59.63	58.98	0.36	2.81
Indigenous Muslims	33.86	7.67	56.60	68.29	57.42	2.15	-3.96
Non Indigenous Muslims	35.39	13.02	54.72	63.01	60.77	0.48	-1.52
Koch-Rajbongshi	20.31	10.75	54.54	60.27	56.62	0.23	1.13
Tea Tribes	23.95	17.80	59.46	70.59	47.44	0.16	-5.78
Bengali Hindu	17.78	12.31	53.85	70.00	53.64	0.50	-1.75
Non-Tribal Assamese	19.76	6.24	45.61	60.00	58.94	0.51	3.05
Nepali	26.67	10.26	51.85	64.00	55.27	1.82	-2.37
Mixed Community	11.22	10.65	32.43	55.32	64.86	0.28	7.66

Source: Primary Survey, 2013- 2015.

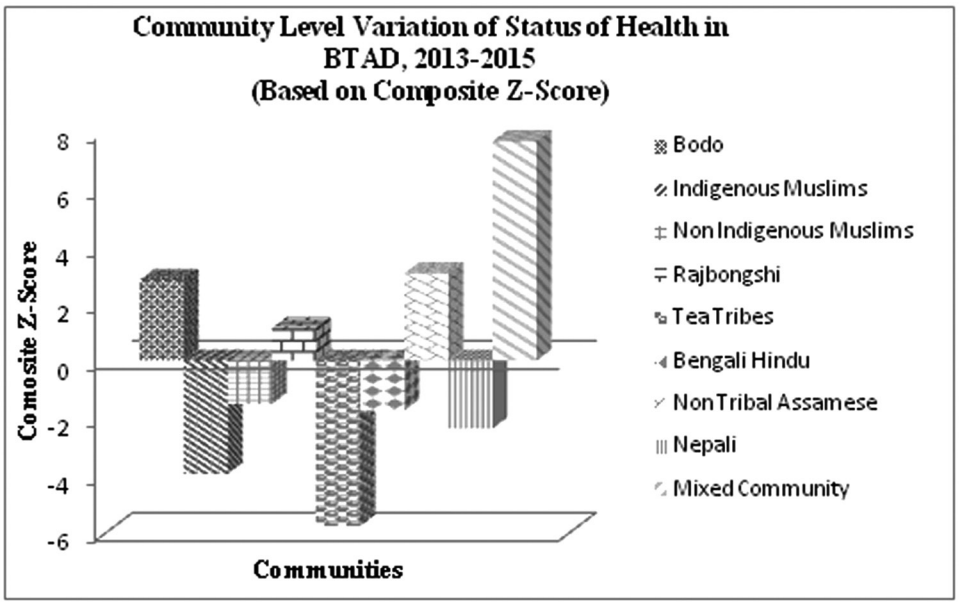

Fig. 3 : Community Level Variation of Status of Health in BTAD, 2013-2015 (Based on Composite Z-Score)

So far overall picture of prevailing health status among the different community villages and urban areas depending on various health indicators is concerned, it is still quite discouraging in the study region. As per the composite Z-score values, the tea tribe community (-5.78) witnesses the most discouraging position among all the different communities in the BTAD region (Table 7 and Fig. 3) followed by indigenous Muslim community (-3.96). However, the status of health is relatively better among non-tribal Assamese community (3.05) and Bodo community (2.81). In contrary to these, the urban areas inhabited by people of diverse communities and culture present a better health status among all the major communities inhabiting the BTAD region.

Educational Attainment and Health Status

Education being one of the positive indicators for measuring human development and its association with maintaining good health, it has great significance to understand overall prevailing health status in an area (Groot and Brink, 2006). As discussed earlier, educational attainment acts as an important determinant of health status and it modifies health care and treatment seeking behaviour of individuals. It is the fact that when higher educational attainment increases, it positively influences health character by way of lowering down CBR, CDR, IMR, U5MR, etc. The increasing consciousness towards health care practices due to acquired knowledge through educational attainment leads to increase in life expectancy (Asghar *et al*., 2009). Thus, to understand the influence of educational attainment level on the overall health status, correlation analysis is carried out between different health indicators and level of educational attainment. The prevalence of high rate of child birth is closely associated with educational level and there exists a strong negative relationship between CBR and educational attainment of HSLC and above level (r= - 0.72) and it is significant at 0.05 probability level (Fig. 4). Thus, higher the level of educational attainment lower is the CBR in the region. However, the influence of education on CDR has weaker negative (-0.31) relation due to influence of other associated health and economic indicators and is only significant at 50 per cent probability level. Likewise, the prevalence of disability rate is also associated with educational progress.

So far the incidence of child mortality in terms of IMR and U5MRis concerned , the relationship study reflects a strong negative relationship between HSLC and above educational attainment level and IMR (-0.95) and U5MR (-0.75). The IMR and educational level of HSLC and above is significant at 0.01 probability levels, while U5MR and educational level of HSLC and above is significant at 0.02 probability levels.

Thus, increasing rate of higher educational attainment level leads to decline of below 1 year age of child death and below 5 years of age child death. In contrary to these, the average age at death or life expectancy rates tend to increase with increasing level of educational attainments, as there exists significant positive correlation between educational attainment level of HSLC and above and average age at death (+0.65). However, it is significant at only 10 per cent of probability level (Fig. 4).

Regression Line of Different indicators of Health Status on Level of Educational Attainment

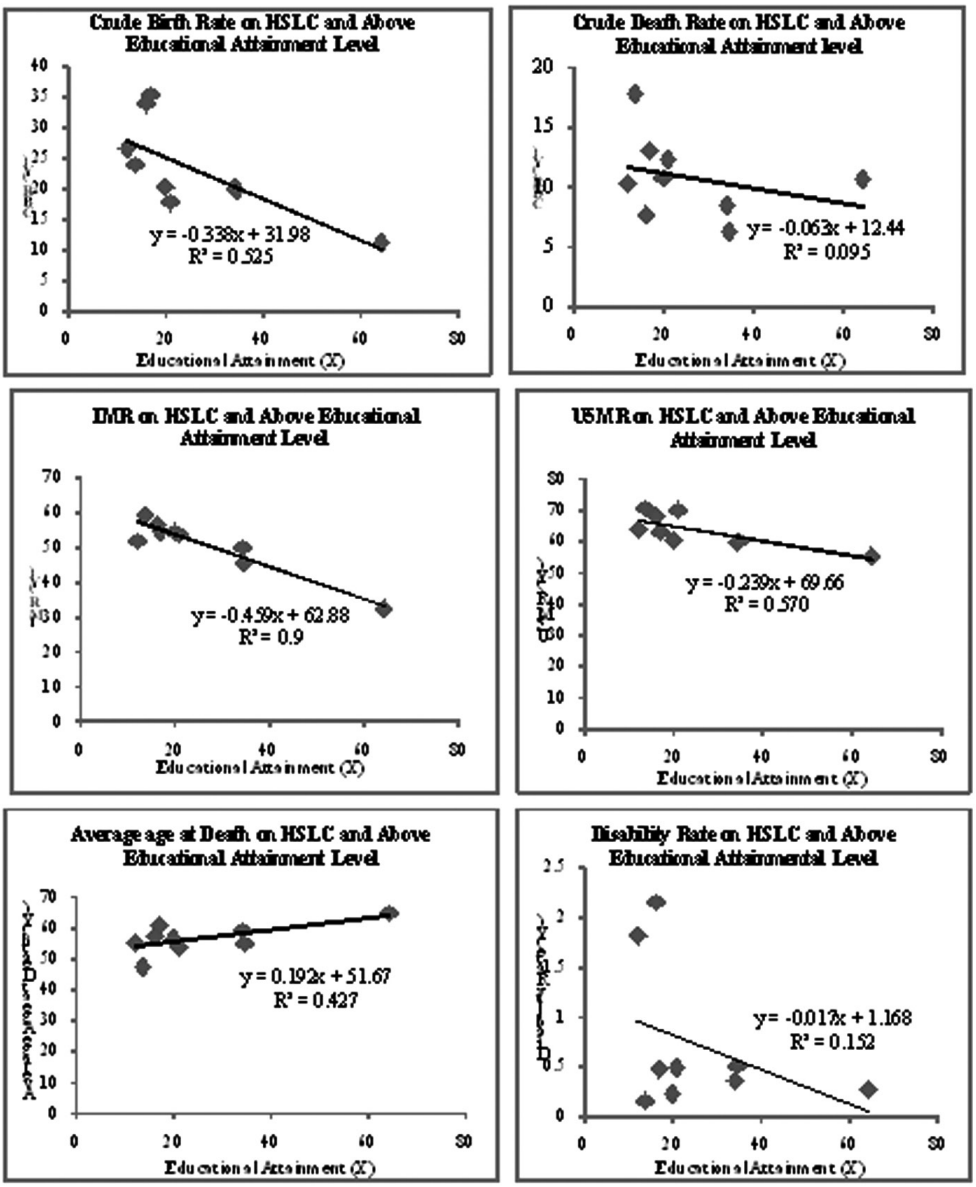
Crude Birth Rate on HSLC and Above Educational Attainment Level
y = -0.338x + 31.98
R² = 0.525
Educational Attainment (X)
Crude Death Rate on HSLC and Above Educational Attainment level
y= -0.063x + 12.44
R² = 0.095
Educational Attainment (X)
IMR on HSLC and Above Educational Attainment Level
y= -0.459x + 62.88
R² = 0.9
Educational Attainment (X)
U5MR on HSLC and Above Educational Attainment Level
y = -0.239x + 69.66
R² = 0.570
Educational Attainment (X)
Average age at Death on HSLC and Above Educational Attainment Level
y = 0.192x + 51.67
R² = 0.427
Educational Attainment (X)
Disability Rate on HSLC and Above Educational Attainmental Level
y= -0.017x + 1.168
R² = 0.152
Educational Attainment (X)

Fig. 4 : Regression Line of Different indicators of Health Status on Level of Educational

Educational Inequality and its Impact on Health Condition

Culture influences our perception and experience of health and illness in many ways and these perceptions and experiences change as culture changes (Loustaunau and Sobo 1997). As the prevailing educational development and its inequality being one of the most important determinants of health have a great impact on the overall status and well-being of an area. As the educational development has found to vary from one community to another community, there exists marked diversity of health status in the region. Thus, the relationship study reveals a highly positive relationship between the educational development level and prevailing health status (+0.94) in the BTAD region among the different communities (Table 8).

Table 8 : Community Level Variation of Educational Development and Health Status in BTAD, 2013-2015

Population Groups	Educational Development Level (Composite Z-score Value)	Health Status (Composite Z-score Value)	Correlation
Bodo	4.15	2.81	+0.94
Indigenous Muslims	-2.64	-3.96	
Non-Indigenous Muslims	-4.56	-1.52	
Koch-Rajbongshi	-0.82	1.13	
Tea Tribes	-5.33	-5.78	
Bengali Hindu	-2.99	-1.75	
Non-Tribal Assamese	4.16	3.05	
Nepali	-1.80	-2.37	
Mixed Community (Urban Areas)	10.48	7.66	

Source: Primary Survey, 2013- 2015.

Conclusion

The foregoing discussion clearly reveals that the progress of education throughout all sections of people is still not up to the mark in the districts of BTAD. The prevalence of such a situation in the region also has great bearing on controlling the various health care management strategies and health status. It has been found that the rates of infant mortality, under 5 mortality, disability and overall death rates are significantly higher in the region and all these have marked influence of educational development in the region. Thus, the educational development would certainly to go long way towards to attain the better health status in the region.

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